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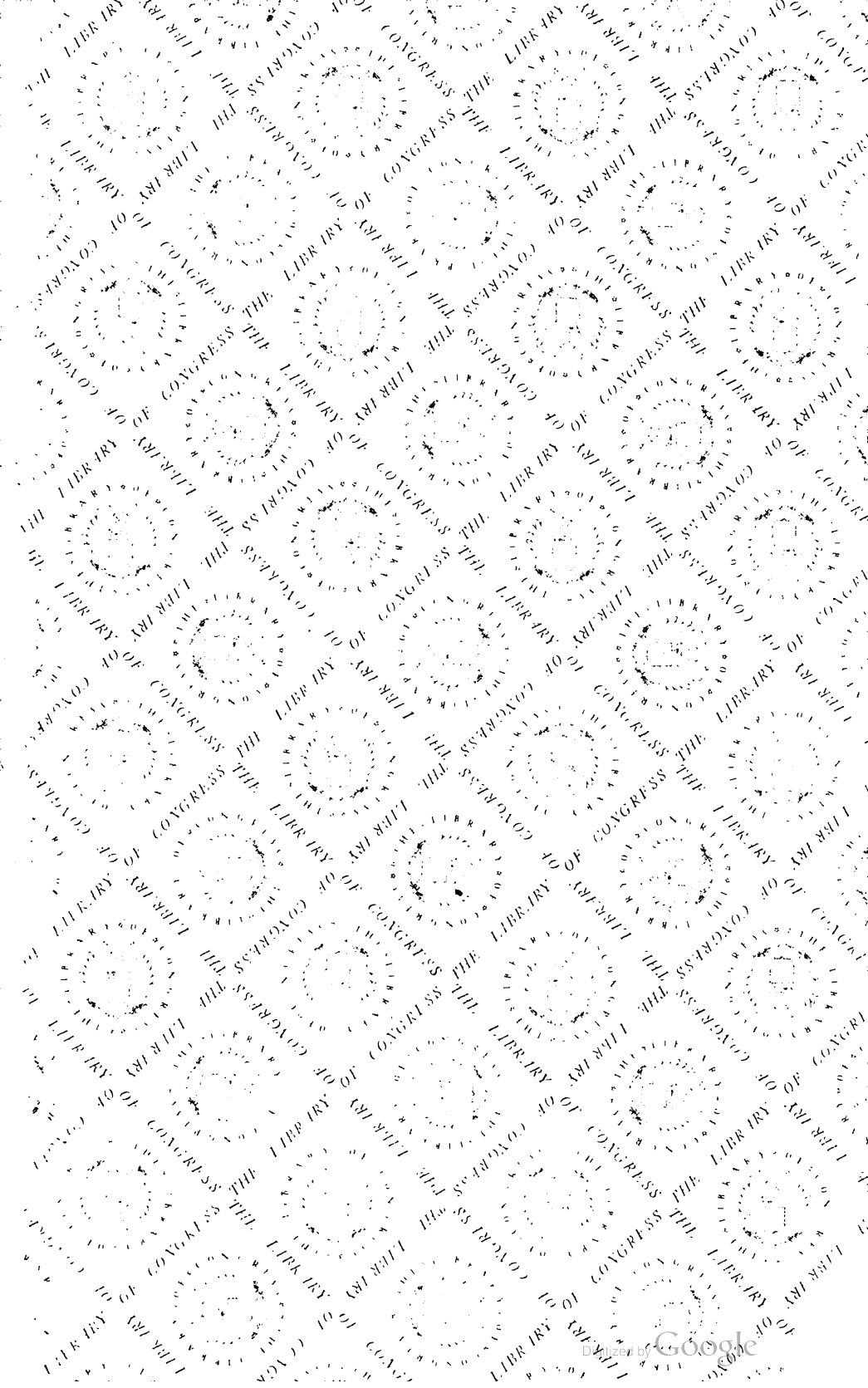
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HOUSE OF REPRESENTATIVES, UNITED STATES.

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# HEARINGS

BEFORE THE

U. S. Cong. H.

## COMMITTEE ON AGRICULTURE

OF

CHIEFS OF BUREAUS AND DIVISIONS,  
AND OTHER OFFICERS OF THE DEPARTMENT  
OF AGRICULTURE

ON THE

ESTIMATES OF APPROPRIATIONS FOR THE DEPARTMENT  
OF AGRICULTURE FOR THE FISCAL YEAR  
ENDING JUNE 30, 1908,

ALSO OF

SEEDSMEN AND OTHER PERSONS ON  
FREE SEED DISTRIBUTION

AND OTHER MATTERS RELATING TO THE DEPARTMENT  
OF AGRICULTURE.

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*Fifty-ninth Congress,  
Second Session.*

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WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
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## DISTRIBUTION OF SEEDS.

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COMMITTEE ON AGRICULTURE,  
HOUSE OF REPRESENTATIVES,  
*Washington, D. C., December 12, 1906.*

The committee met at 10.30 o'clock a. m., Hon. J. W. Wadsworth in the chair.

The CHAIRMAN. There are some gentlemen here who want to be heard on this question of Government free-seed distribution, and I call the committee together to get this question out of the way before the holidays, so that after the holidays we can go on with the appropriation bill. Now, Mr. Smith, please state who are here.

### STATEMENT OF WILLIAM WOLFF SMITH.

Mr. SMITH. There are ten or twelve gentlemen here, if you will hear them. Mr. Burpee, of Philadelphia, was selected to open, and he has to leave at 12.30; but he is not here yet.

The CHAIRMAN. We can give you about an hour and a half. You can use the time just as you please, and arrange it among yourselves.

Mr. SMITH. In that case, I suggest that you hear Mr. C. F. Wood, of Louisville, Ky.

The CHAIRMAN. How many people do you want us to hear?

Mr. SMITH. We would like you to hear at least eight, I should say, and possibly ten.

The CHAIRMAN. How much time will each one want?

Mr. SMITH. That is entirely in your hands. It is our understanding, Mr. Chairman, that, if agreeable, we should have some time this afternoon or to-morrow morning. Professor Massie, of Philadelphia, who was to speak for the agricultural press, can not possibly get here until to-morrow morning, and I believe Professor Jackson, of Richmond, will be here this evening; but these gentlemen had engagements and they could not break them in time to get here to-day.

The CHAIRMAN. Go on until 12 o'clock to-day, and then the committee will take up the matter of a further hearing.

Mr. SMITH. I desire to introduce Mr. Wood.

### STATEMENT OF CHARLES FRANCIS WOOD, OF LOUISVILLE, KY.

Mr. Wood. Mr. Chairman and gentlemen, my name is Charles Francis Wood, of Louisville, Ky. I am a member of the firm of Wood, Stubbs & Co., and am engaged in the seed business.

This question of an appropriation for the dissemination of seeds in various ways has been a question that has come up before your body and before the House and the Senate for many years. It is only in

the last few years that the question of the appropriation has been discussed as to its value, etc.

The original appropriation (while it was confined strictly within the limits of the law) was never objected to by the seedsmen, and I may say that the question of the appropriation was not taken up by the seedsmen at first at all, but was taken up by the National Grange, an association of farmers of the United States. They agitated the question of this Congressional free distribution of seeds themselves, realizing that many parts of it, as it was carried out, were not doing the country any good. They recognize that it was a misuse of public funds, that it was doing the country no good, and that it was injuring a legitimate private business.

The question, as I understand this matter, is whether this appropriation shall be made, or if it is made, shall it be confined to the strict limits of the law. The law says this act was for the dissemination of new and improved varieties of seeds; and we, as seedsmen, and the country at large, the farmers, do not question this enactment or the wisdom of it. We say, however, gentlemen, that as the law has been construed in the last eight or ten years, and as a portion of it is devoted to injuring a legitimate business, that portion of it should be carefully considered by Congress, and stricken out of the appropriation.

This appropriation is divided up into three classes: First, the Congressional free distribution of seeds; second, the dissemination of new and improved varieties of seeds, and, third, the exportation of foreign countries with a view of finding new seeds for introduction to our citizens. These last two classes we, as seedsmen, and the country at large, do not object to; but we do say that the first clause of this appropriation is a serious menace and injury to our business, and that it does the country at large no good.

Now, look at the Congressional free distribution of seeds. What does it amount to? It is an appropriation of \$132,000 to be spent in common garden seeds, which are put in small packages and sent indiscriminately throughout the country to a list of constituents, and at the request of comparatively few men. I venture to say that the average Congressman, out of his total number of constituents, does not get 2 per cent of those people who write him for seeds. The balance of them are sent as a small gift to a list of names which may be sent him from voting lists, etc. We do not question that point at all. We know that the Congressman has a right to send anything that is given him free; but the question is whether that appropriation is going to do any good, or whether it is doing the country any good, and whether it is not doing the seed business an immense injury.

We have evidence here, which will be laid before you when the time comes, to prove that the combined agricultural press is solidly opposed to this free distribution. We have evidence to prove that every grange, every horticultural society, every board of trade, every interest pertaining to the farmer, has passed resolutions condemning it; and I will show you that a large majority of these things have been done entirely voluntarily on their part. We have no printed petitions, no set forms, to present to you. We can show you the crabbed handwriting of the old farmer, who can hardly write, who has gone to the trouble of writing out a set of resolutions to present to his little meeting, asking that this Congressional free distribution

of seeds be stopped. We will show you editorials taken from the best and most influential of all the press of this country condemning this appropriation and showing up the folly of it.

Mr. SCOTT. Will you permit me to ask you a question or two, if it will not interrupt you?

Mr. WOOD. Yes, sir.

Mr. SCOTT. Have the seed men a national organization?

Mr. WOOD. They have a national organization in this: They have a meeting once a year for the good of the order.

Mr. SCOTT. Has that association, if it could be so called, or the seed men, through smaller organizations, or individually, to your knowledge, brought pressure to bear on the agricultural press to influence their position on this question?

Mr. WOOD. No pressure has been brought to bear. If I understand your question, you mean have they used certain threats, as it were, or pressure in that way.

Mr. HASKINS. No; not threats, but inducements.

Mr. WOOD. No.

Mr. SCOTT. The statement has been made in the debates on this question that the editorial position of the agricultural press could not be taken as significant of the real sentiment of the farmers because it reflected the business office of the press; that the advertisers—the seed men who advertised in the agricultural press—had more influence in the editorial utterances of the paper than the farmers who were the subscribers to the paper, and it is for the purpose of drawing that out that I asked the question.

Mr. WOOD. I think I can answer that for you. In the United States there are about 14,000 of what might be termed county papers. By a county paper, I mean a paper that has a circulation right in its own little county. There are possibly 475 to 500 farm journals, or journals which have a general circulation among the agricultural part of the country at large. The amount of advertising in the United States in a year I could not tell you. It is simply enormous. There are, I suppose, about 10,000 advertisers in the city of New York alone who advertise generally throughout the country. The seed-trade advertising, as far as it is compared with the volume of advertising done in the United States, does not amount to 1 per cent of the total advertising done.

The question, as you no doubt know, has been raised in regard to the patent-medicine advertising. You have been shown in *Colliers' Weekly* and many other publications an ironclad contract to the effect that the minute you publish anything derogatory to the patent-medicine industry the advertising ceases. That I would take as kind of controlling the press.

I will say to you that the seedsmen of the United States do not take advertisements in one-third of the agricultural press. I mean, taking the county papers, and all that, I venture to say that there is hardly more than one-third of those papers that contain seed advertising. You take the daily press, the influential dailies, and everybody who is a practical advertiser knows that it does not pay to advertise in daily newspapers in the seed business.

In the first place, the profits will not justify it, because the daily newspaper goes largely to people in the city, and what the seedsmen

want is country circulation. You take the best of the daily newspapers, and they have voluntarily written editorials and published them in their dailies condemning this free-seed distribution.

Take the boards of trade. Take the New York Chamber of Commerce. Everybody knows there are no farmers in that. The board of directors of the New York Chamber of Commerce passed strong resolutions condemning the distribution of free seeds. Take the boards of trade in other places. They have passed similar resolutions; and I tell you that a great many of these resolutions that have been passed by horticultural bodies and by farmers' associations have been voluntary. They may have seen the suggestion in some paper. They realize that as it is at present carried out it is not doing the country any good.

Mr. LEVER. Just one minute. Will you argue that point? Why is it not doing the country good?

Mr. WOOD. I am going to explain that to you right now.

Mr. DAVIS. Before you go on let me ask you this question: Is it not a fact that all or nearly all of the seedsmen do more or less advertising in nearly all of the strictly agricultural journals through the country—I mean the agricultural journals as such?

Mr. WOOD. I would say there are 1,000 seedsmen in the United States, strictly speaking, as such. Out of that 1,000 seedsmen—those men I mean who are strictly and legitimately in the seeds business and depend on the seeds for their living—I do not believe there are more than 100 to 125 men who advertise in the press in that way.

Mr. DAVIS. Take the two leading agricultural journals of Minnesota, the Northwestern Agriculturist and the Farm, Stock, and Home, two large journals. Do they not advertise in those papers?

Mr. WOOD. Yes, sir. If you will look at those two publications you will probably find in the months of January, February, March, and April—I do not know which of the months are the best to advertise in that journal—as much, we will say, as three-quarters of a page, at the most of seed advertising. After that time they are done. Now, if that publication had to depend on this little seed advertising it would soon have to close up its doors.

Mr. DAVIS. Just another question. Were you ever in Congress?

Mr. WOOD. No, sir.

Mr. DAVIS. How do you arrive at the fact then that you do not believe the constituency of any Congressman does not send in 2 per cent of the requests for seeds?

Mr. WOOD. I did not make that statement definitely. I made it as a supposition. I made it on the basis of what I know is what might be termed a general average. We have, for instance, in the State of Kentucky, a law which requires all fertilizer people to register their brands of fertilizer, and every farmer in that State who buys a ton of fertilizer is requested to send a sample of that fertilizer to the experiment station for analysis.

There are possibly 30,000 tons of fertilizer sold in the State of Kentucky. That 30,000 tons of fertilizer is possibly sold to 30,000 people. Out of that 30,000 people who buy fertilizer in the State of Kentucky, with that direct request, which is for the purpose of protecting the farmer himself, to send his sample to the experiment station, 147 people sent samples.

Mr. DAVIS. For your edification I will say this. I have a constituency of about 40,000 voters, and I distribute annually from 25,000 to

30,000 or 35,000 seed. There is not 1 per cent of that distribution that goes to a man who does not request it. I do not mean a request by letter, but a personal request upon the man who has the distribution of them in various portions of my district.

The CHAIRMAN. How many applications do you find you get?

Mr. DAVIS. Written letters?

The CHAIRMAN. Yes.

Mr. DAVIS. I suppose 500. As I stated, there is not a man gets a package of seeds who does not come and personally make his request of either the post-office or the man in the voting precinct who has the distribution in charge. Therefore they are not indiscriminately thrown around to the voting population. For instance, I send 100 or 125 packages to a certain place. No man or woman gets a package of seed unless they come there and specially request it, and I distribute from 25,000 to 35,000 each month.

Mr. SCOTT. Do you give notice in that community?

Mr. DAVIS. No, sir; I do not.

Mr. SCOTT. Do you not publish a notice that the seeds have been received?

Mr. DAVIS. I do not.

The CHAIRMAN. You send them to the postmasters?

Mr. DAVIS. Some to postmasters, some to committeemen, and others.

Mr. CROMER. How do they find out who is to distribute your seeds?

Mr. DAVIS. Generally speaking, from the postmasters. John Smith will come and say to the postmaster, "Has our Congressman sent you any seed?" "Yes, sir." "I would like to get some."

The CHAIRMAN. Does the postmaster like to do that?

Mr. DAVIS. I suppose so. He puts them in the boxes anyway. He puts the name on that and disposed of them. I simply state that for the benefit of the committee. I buy 15,000 to 25,000 every year aside from my regular quota. I have to do it in order to comply with the requests.

The CHAIRMAN. Do you buy from members of Congress?

Mr. DAVIS. I buy some from the Department and some from men around the corridors here who claim they have obtained them from the city Congressmen who have no use for them. They sell them to me at reduced figures.

Mr. CROMER. You never buy them from the seed men?

Mr. DAVIS. I buy them for cash as cheaply as I can.

The CHAIRMAN. From fellow members of Congress?

Mr. DAVIS. No; I buy them from agents or from young men around the corridors here who come to me and say, "Will you give me so much a package for 5,000 packages?" I ask them where they get them, and they say they get them from city members who do not need them in their districts and have them for sale.

Mr. WOOD. Mr. Davis will bear out my statement—I do not know where he lives.

Mr. DAVIS. In Minnesota.

Mr. WOOD. You will bear out my statement then that not 2 per cent of the seed which you distribute do you have a direct request for?

Mr. DAVIS. Not a written request.



Mr. WOOD. A direct request?

Mr. DAVIS. I have a direct request through my committeeman or the post-office.

Mr. WOOD. That is the point that I intended to bring out. Of course if you were to go along the street and see oranges piled up in a pile, and there was a sign on them, "Take one," I think pretty nearly everyone who went along the street who wanted to eat an orange would take one.

Mr. DAVIS. That is not analogous to my case; not at all, sir.

Mr. WOOD. That is a question, Mr. Davis, that you will have to decide. What I wanted to bring out especially in regard to this matter is that in theory and in practice the Congressional distribution of seeds is wrong. You will all acknowledge that we, as taxpayers—

Mr. DAVIS. Is that on the theory that anything the farmer gets for nothing is wrong?

Mr. WOOD. No, sir; pardon me. I will show you that as taxpayers of the United States we have to help to support this Government, and I think the seedsmen pay as large a proportion of the tax as anybody else, in proportion to their numbers. We have to get a living out of the business. If, as Mr. Davis says, he can go around here in the corridors and buy up a few seeds and send them to his constituents, we are certainly losing Mr. Davis' business. If he has to have those seeds, we would like to sell them to him. We will sell him good seeds, too.

Now, gentlemen, from my statement here, you will all come to one of two conclusions. If I get up and state to you that these seeds are no good, and are doing the country no good, you will say: "What the dickens are you here for anyhow? What have you got to do with it? You are being done no harm. You acknowledge the seeds are no good. What have you to do with it?" We do not say that to you. We think the Department is doing the best it can. It is buying good seeds.

Mr. LEVER. As to your proposition that the taxpayers have to pay this, have you calculated just how much it costs per capita to send out these seeds?

Mr. WOOD. Pardon me; I did not say the taxpayers pay this. I said we as taxpayers have to bear our proportion of the expense, if it is but one cent. It is the principle of the thing rather than the question about how much money it takes. We as taxpayers have to bear our proportion of that expense. I do not say that amounts to very much as far as I am individually concerned; but as a question of principle it is a question that should be considered. We as seedsmen are being very largely injured because it is a direct giving away by the Government of something that we have for sale.

Mr. LEVER. You know, of course, that the United States Government, through Members of Congress, distributes maps, for instance?

Mr. WOOD. Yes, sir.

Mr. LEVER. And horse books, and books on diseases of cattle?

Mr. WOOD. Yes, sir.

Mr. LEVER. Upon the same principle you would object to that, would you?

Mr. WOOD. No; hardly. That is a matter of education. This is not a matter of education. Of course these arguments have been

presented to you often, but what is the good of my bringing in the question here of why you do not distribute cigars, or boots and shoes, or anything of that kind? I do not put that in as an argument. I say on principle the Government has no right to give away any merchandise that is not educational or that is not doing the country good. If the Government were to go into the manufacture, for instance, of some commodity like pocket knives, or lead pencils, or anything of that kind, and send them out indiscriminately through the country, I think it would do the pocket-knife man and the lead-pencil man an injury. Therefore, as I say, we take the position that it is doing our business harm.

Now, gentlemen, to come back to this question, the Congressional free-seed distribution as provided in the appropriation bill is wrong. The seeds you send out, we will acknowledge, are good seeds; but I say in the way you distribute them a great many of them are not used, from the fact that if I live in a town and my back yard is 30 by 20 feet, what do I want with a package of watermelon seed? What do I want with a package of pumpkin seed?

Mr. LAMB. You do not get them.

Mr. WOOD. Pardon me. I did last year. I got a package containing as follows: One packet of mustard, one packet of watermelon, one packet of radish, one packet of beet, and I got it from the Congressman from our district. Everybody on the street got a package.

Mr. DAVIS. Suppose you had owned a 40 or 80 acre tract of land, and had been engaged in farming; would not those have been valuable to you?

Mr. WOOD. Suppose a market gardener gets that package. He wants 10 pounds of seed, and he buys a package about that big [indicating].

Mr. CANDLER. Suppose they turn out to be a very valuable variety.

Mr. WOOD. That is the point I was going to bring out.

Mr. CANDLER. Then is it not valuable to him?

Mr. WOOD. I took particular pains to look up that very lot of seeds I got. I found four of those varieties had been introduced in the United States over fifteen years and sold at every corner grocery store, and that one variety was introduced five years ago. You could have come down to our store and bought any one of those packages of seeds at 5 cents a package.

Mr. CANDLER. Nobody denies that.

Mr. WOOD. If it was a question of new and rare varieties I would not kick.

Mr. CANDLER. You speak about the injury. The appropriation for Congressional free seed distribution was \$132,754.73.

Mr. WOOD. That is right, sir.

Mr. CANDLER. Is not the injury to your business or anybody's business by that amount of seed throughout the United States of America absolutely infinitesimal, and is it not impossible to arrive at any damage to you or to anybody else?

Mr. WOOD. How many packages is that divided up into?

Mr. CANDLER. There are five small papers in each package.

Mr. WOOD. What is the total number of packets?

Mr. DAVIS. About 40,000,000.

Mr. WOOD. 40,000,000 packets of seed at 5 cents apiece is how much?

Mr. CANDLER. You can calculate it as well as I can.

Mr. WOOD. \$2,000,000, is it not? I want to tell you, gentlemen, that our business is not conducted all the year around. The time for farmers to plant seeds is in the spring, and if we could not make a large proportion of profit from our sales in the spring, how in the world are we going to live in the summer and fall and winter when people are not buying seeds? We are bound to make profits, or we have to get out of it. As Captain Landreth said at the last meeting of the seed association, there are 5,000,000 people in the United States who own one-sixteenth of the entire national wealth of this country. Not one of them is a seedsman. And he further went on to show that not one seedsman had amassed as much as \$1,000,000, and not more than one in this country has amassed over \$500,000 out of his legitimate business.

The firm of D. Landreth & Sons have been in business since 1784, the business being handed down from father to son, and still four years ago they had to go into bankruptcy. There is not the profit in the seed business that you gentlemen think. When you take into consideration the expenses and the great amount of work and the enormous amount of details we have to go into to protect our business and the expert knowledge that is required of us, I want to tell you, gentlemen, it is not the cinch you think it is.

Mr. LAFEAN. You say last year the appropriation was \$132,000?

Mr. WOOD. Yes, sir.

Mr. LAFEAN. You say you could sell those seed for over \$2,000,000. It looks to me as though there was a good deal of profit in that.

Mr. WOOD. Pardon me; I did not say so.

Mr. LAMB. That is what I inferred.

Mr. WOOD. I say that seed was divided up into 40,000,000 packages of seeds. A man who buys a package of tomato seeds buys a package of seeds for 5 cents. He may not want over 15 plants of tomatoes. He may not want over 30 to 50 plants of cabbage. He may get seed enough in that to make him double or three times the quantity of plants he required; but as a matter of business you can not afford to put up a package of seed for a cent. It does not pay. There is no money in it. It is too small, too picayunish a business. Seeds go a long way. If you, for instance, have a small suburban home and you get a package of tomato seed from Congress, that package of tomato seed, while it may not have as much seed in it as my package, will make you your 15 or 20 plants that you need.

Mr. FIELD. Have you considered this possible advantage to the farmer in the distribution of these seeds, many of which are the common variety? It very often happens that a certain variety has not been theretofore planted in that community, and it is discovered it is a very valuable variety. For instance, take the cantaloupe seed that is grown in Colorado, a very fine variety. It has been introduced very largely among the farmers by this free distribution, and perhaps it would not have come to their attention except for that fact.

Mr. WOOD. You mean the Rocky Ford?

Mr. FIELD. The Rocky Ford.

Mr. WOOD. The Rocky Ford is a variety of Netted Gem type that is introduced by Mr. Burpee.

Mr. BURPEE. Twenty-two years ago.

Mr. LAMB. But it increased very slowly among the farmers. They have not appreciated it to its full value.

Mr. WOOD. Allow me to suggest this to you about that Rocky Ford cantaloupe. If any of you do not believe my statement about this you can try it for yourselves. The Rocky Ford cantaloupe is absolutely nothing in the world but the Netted Gem cantaloupe taken to Rocky Ford, Colo., where it was found that certain conditions were present which would produce cantaloupes, and that special variety, to perfection. The Government did not introduce the Rocky Ford cantaloupe. The fame of the Rocky Ford cantaloupe spread all over the country because they were growing them in this particular locality to such perfection, and instead of continuing the old name, Netted Gem, the name "Rocky Ford" got attached to that cantaloupe because they came from Rocky Ford. That is no new variety of seeds.

Mr. FIELD. To show you how new it was down in my section, a man named that particular variety the "Field," after me. It was the first seed of that kind he ever got. He did not know whether it was Rocky Ford or anything else.

Mr. WOOD. I will be very glad to take up this matter later, gentlemen, but Mr. Burpee has to leave on the 12 o'clock train, and if you will pardon me, I will stop and let him speak.

Mr. CANDLER. I want to ask you some questions along the line suggested by Mr. Scott a while ago in regard to the effect given to those editorials in the newspapers. While this matter was pending at the last session, the seedsmen held a meeting in this city, did they not?

Mr. WOOD. Some of them. I was not here. I do not know anything about it.

Mr. CANDLER. The morning paper said they held a meeting and organized in order to make a concerted fight against this appropriation. They held a meeting at the New Willard Hotel and decided that the way in which they would create sentiment was to use the newspapers throughout the United States. Do you know whether a fund was raised for that purpose or not?

Mr. WOOD. No, sir; I do not. If it was raised I would have been likely to hear of it, and I was not called on for any contribution, to my knowledge.

Mr. CANDLER. Is there not a fund set apart by the seedsmen now for this purpose?

Mr. WOOD. For what purpose?

Mr. CANDLER. For the purpose of using it——

Mr. WOOD. With the newspapers?

Mr. CANDLER. I do not know whether through the newspapers or not, but to create sentiment against this appropriation.

Mr. WOOD. I do not know that there is any fund set apart for that purpose. There is a fund set apart to bring this matter forcibly before Congress, so that they can see whether it is doing the country any good and whether we are right in our contention. If I came before you as an individual man and presented my claims to you as a seedsman on this question it would have very little weight with you.

Mr. CANDLER. Was there not a fund of \$3,000 set apart last year for this purpose by the seedsmen?

Mr. WOOD. If there was, I do not know it.

Mr. CANDLER. Is there not a fund of \$10,000 set apart this year for that purpose, or to be used, as you say, to create influence and bring the matter before Congress?

Mr. WOOD. No, sir; absolutely not.

Mr. CANDLER. Any fund?

Mr. WOOD. No, sir; no such amount as that. There is a fund for the purpose of presenting this matter to Congress in the most forcible way, but I will say that not one cent of that money has been used to influence newspapers.

Mr. CANDLER. How is that fund to be used, then?

Mr. WOOD. It is to be used by getting up matter and data in regard to this subject, with a view of presenting it to Congress. If all these agricultural papers and all these associations passed resolutions in regard to it, how will you know anything about them unless we collect them and present them to you in a form which you may not see yourself?

Mr. CANDLER. Did not the seedsmen maintain last year, and are they not now maintaining, an office here in the city of Washington?

Mr. WOOD. They are not maintaining an office; no, sir. They have a representative here. Mr. William Wolff Smith is their representative here.

Mr. CANDLER. He is in charge of it and he has been sending out literature and writing letters and things of that kind during a year and a half?

Mr. WOOD. Yes, sir.

Mr. CANDLER. Is the expense of the propaganda that is being carried on paid out of this fund?

Mr. WOOD. Yes, sir. Mr. Smith will answer these questions.

Mr. DAVIS. I would like to ask one question. Do not the agricultural papers in each State, as part of their duties or obligations to seedsmen, make it a point to send a concise statement of objections against the distribution of seeds to each Congressman in their State?

Mr. WOOD. I do not know whether they make it a point to do it or not.

Mr. DAVIS. Do you not know they do it?

Mr. WOOD. I do not know whether all of them do it or not.

Mr. DAVIS. Do you not know that the Northwestern Agriculturalist, of Minneapolis, and the Farm, Stock, and Home, of Minneapolis, which are about as large papers as there are in the Northwest, do that in their State?

Mr. WOOD. I did not know they published resolutions against it.

Mr. DAVIS. They are not resolutions, but editorials and personal letters to Congressmen.

Mr. WOOD. I did not know they had published any editorials against it at all.

#### STATEMENT OF W. ATLEE BURPEE, OF PHILADELPHIA.

Mr. BURPEE. If anyone, Mr. Davis, is to blame for raising money for what we all maintain is a legitimate purpose I am the man.

Mr. DAVIS. I am not objecting to your raising money for any purpose.

Mr. BURPEE. It was Mr. Wadsworth's committee, gentlemen, that brought new hope to us years after we had given up the fight, when



your committee a year ago, I believe it was, in the beginning of March recommended the agricultural bill with the appropriation for the continued Congressional seed distribution omitted. It was then I called up my friends from Philadelphia. I called up on the long distance telephone Peter Henderson & Company, David Landreth & Sons, at Bristol, and several of the Philadelphia houses, William H. Maule, Henry A. Greer, Johnson & Stokes, and others. I said:

Gentlemen, after all the years we have tried, in a desultory manner, to have this discontinued, here we at last find friends in the Committee on Agriculture of the House. They recognize that the Congressional free-seed distribution as now conducted is not the benefit which so many believe it to be.

Our firm's last fight was in the last term of the Hon. J. Sterling Morton as Secretary of Agriculture. Then the Congressional seed distribution was divided into different sections and let out to the lowest bidder. Our firm obtained, for a sum in the neighborhood of \$50,000—I forget the figures now—the contract for the Atlantic and Middle States, but not the South. Later we received also the contract for the Pacific coast at about \$7,000 or \$8,000 more. It approximated \$60,000 altogether. The year previous David Landreth & Sons had had the contract for the entire United States for vegetable seeds, and another firm in St. Paul, Minn., had the contract for flower seeds.

As those of us who were in Congress at that time will remember, the Hon. J. Sterling Morton was continuously and consistently opposed to this free distribution of ordinary common varieties of seeds that were to be bought at any village store or in any seed shop. After our firm obtained the contract, I forget just what brought it up, but anyway I knew Mr. Morton personally, and a letter that he wrote me about the distribution of seeds, in his vigorous manner, appealed to me as so strong that I sent it to Clark Davis, editor of the Philadelphia Ledger, and told him that as he had frequently had editorials against the distribution of seeds, I thought he would enjoy using this letter of Mr. Morton. He did so, and that started a discussion which individually, with Mr. Morton, our firm carried on almost without asking for help from other houses in the trade.

Some of you remember that Mr. Smith, of the Botanical Gardens, a personal friend of mine and a fine old Scotch gentleman, was so incensed at these articles in the Philadelphia paper, as I mailed him some copies, in criticising the congressional seed distribution, that he wrote me a very strong letter beginning something like this:

MY DEAR BURPEE: I can not understand how you and the Hon. J. Sterling Morton will accept money for doing what you do not approve of.

Then he went on and gave his reasons, stating that many backwoods countrymen, particularly in the South and the Far West, never came in touch with this great Government except through the five packages of seeds that they received annually from their Congressmen. He closed his letter by saying: "I am mailing a copy of this letter to every Senator and to every Member of Congress."

In my reply to Mr. Smith I said:

Surely J. Sterling Morton needs no defense at my hands. As for your criticism of my actions, permit me to say that the Government contract calls for seeds and for seeds only, and we are faithfully executing the contract, but our opinion is not purchasable. I am of the same opinion to-day as I was last year, but it would have been very bad taste for us to have criticised this distribution

when David Landreth & Sons, our friends, were conducting it, as it might have reflected on them; but now, when we have the bulk of the order, I think it is perfectly right we should give our opinion.

Gentlemen, the point has been brought out here in regard to the Rocky Ford melon. I said, in answer to that question, that I introduced that twenty-two years ago. The exact date was twenty-three years ago. I introduced it as Burpee's Netted Gem. It has been grown all those years very largely in New Jersey and along the Atlantic coast, in Georgia and so on. Perhaps eight or ten years ago we sent the first seed from Philadelphia out to Rocky Ford, Colo. They have land there that they thought would grow good melons, as it could be irrigated. I think they experimented with different varieties until they settled down on this Burpee's Netted Gem.

Then in labeling it and sending it to market, in New York, Chicago, and different cities, they gave it the commercial name "Rocky Ford," not as a seed variety, but as the product of Rocky Ford. The name Rocky Ford naturally became attached to it, and the melons are called Rocky Fords, even if sold in Georgia. We have sold as high as 1,000 pounds of seed to one grower in Georgia.

Mr. LAMB. Was not that seed very much improved by its cultivation in Rocky Ford?

Mr. BURPEE. Not at all. You can grow finer melons there in Rocky Ford. That is all.

Mr. LAMB. Did it not give reputation to your original seed?

Mr. BURPEE. The Rocky Ford people have ideal conditions, and the melons come in late. They have a long season, and they are very careful in growing them, in selecting them, and in crating them nicely; and the variety, as you say, is known all over the world as Rocky Ford much more than it ever was as Netted Gem.

Mr. LAMB. That was due largely to a happy introduction in that particular place of your original seeds, was it not?

Mr. BURPEE. The result would have been the same with whatever melon they may have taken, when they could grow them under such ideal conditions and ship them with such intelligence, crating them properly. If they had taken Emerald Gem or Hackensack Martin, or any other variety, and grown them under the same conditions and crated them in the same way, whatever melon it was, would have become popular as Rocky Ford, because they got them in the market at a time when other melons were out of the market, at a season of the year when it was at its very best.

Mr. WOOD. I will state that an association of Florida growers last year came to the conclusion, which was published in some of the journals, that seeds from Rocky Ford did not suit their climate as well as seeds grown in New Jersey or somewhere else. Hence the production of melons there does not necessarily mean that the seed is going to be improved.

Mr. BURPEE. That is a very broad question to go into. For instance, take the cauliflower. They grow around the eastern end of Long Island more cauliflower than in any other section of this country, and yet they would not plant seed raised on Long Island or even seed raised on Puget Sound, or California. They want seed grown either in one little section of Germany or, as that produces so little, in Denmark. Practically all the cauliflower seed used on Long Island produced in Denmark.

Mr. SCOTT. Is it not true that the seed from a Rocky Ford melon grown at Rocky Ford, Colo., if planted in the heavy soil of Illinois, Missouri, or Kansas, would produce a melon much inferior in flavor to the Rocky Ford product?

Mr. BURPEE. If the conditions were not as good, certainly; although, permit me to say, the Netted Gem, or Rocky Ford, as they call it, grown in southern New Jersey, where they have light sandy soil, is of just as good a flavor as if grown in Colorado. There is an old saying about melons that you can not grow a fine flavored melon when you have to sleep under blankets. They want the nights rather warm as well as the days, and you have often noticed that in certain seasons it is impossible to get a good melon, while in other seasons the conditions are suitable and you get good ones.

In reference to the point Mr. Davis asked about—the Congressional distribution, giving away approximately five packages of seed where the Members of Congress have absolutely no choice as to what are the contents of those packages—instead of promoting agriculture I should say, individually, is a detriment, because the man who gets them is waiting for this package and does not know what he is going to get. When they do eventually come they may be pumpkins or turnips, or something for which he has no use, and instead of studying the seed catalogue we send out, and getting the varieties he wants to grow, he finds he has something else.

Mr. CANDLER. The law requires the Department of Agriculture to distribute in each section of the country that character of seed which is especially suitable for the soil.

Mr. BURPEE. Pardon me, sir. Will you allow me to answer that? Doctor Galloway can tell more about that than I can, but being in the business I know something about the purchase of stocks. Am I not right, Doctor Galloway, in saying that last year the Department purchased and distributed many thousands of pounds of onion seed?

Mr. GALLOWAY. Yes.

Mr. BURPEE. This year you do not purchase or distribute a single pound of onion seed?

Mr. GALLOWAY. I am not able to answer that question definitely.

Mr. BURPEE. I know you do not. I know the sources of supply. Now, what effect does it have to send out thousands of pounds of onion seed one year and the next year no Member of Congress can get any onion seed, no matter what he wants?

Mr. CANDLER. They sent them out last year, and they are expected to keep for the next year.

Mr. BURPEE. Let me say this: In the first place, the Department is very ably managed. The seeds sent out are good and the work is well handled. We in the seed business have to produce for our normal requirements every class. For instance, this year onion seed is very short. We would be very glad if we did not have to supply any onion seed. I have already sent onion seed to Texas at 10 cents less per pound than I would pay for it. That is done for the purpose of holding our old customers. Of course our prices will be higher when our new catalogue comes out. I look up the records and see whether a man has been a market gardener and has been buying year after year. If he is a new customer and sends me \$23.70 for that onion seed, I would write to him we could not supply it.

When I see he has bought 15 or 16 pounds the year before and 10 or 12 pounds the year before that for a series of years, I think it best to send him what he wants and then write him that we can not supply any more at that price, as it is much higher. But why is the Department of Agriculture able to do so much more than we seedsmen can do? Because they do not have to contract and purchase certain specific varieties. Not only do we have to produce onion seed every year but certain specific varieties. If the Department wanted to give out onion seed every year, they would still have an advantage over the seedsmen, because several of those varieties of onion seed are produced in the greatest abundance and are the cheapest.

Mr. FIELD. Is there not a resulting advantage to the seedsmen in this, that the Government distributes its seed throughout the country? Take the onion seed for illustration. It is found to be well adapted to Texas, and has come to be quite an industry. When the Government ceases to send onion seed, to whom do they apply? They apply to the seedsmen to get the seed, do they not?

Mr. BURPEE. Yes.

Mr. FIELD. Does not that result in an advantage to you?

Mr. BURPEE. Undoubtedly, when new varieties are given out.

Mr. FIELD. Are they not able to discriminate between the good and bad varieties, and apply to you for the good varieties afterwards?

Mr. BURPEE. I suppose it would result to some degree in that way. The only point I am making is that the intent was to send out new varieties. I want to make this statement, and I will ask Doctor Galloway to corroborate me. I made two trips to California and I know where the Department obtained that onion seed. The Department of Agriculture obtained that onion seed, gentlemen, for 15 cents a pound last year, because it was in a grower's hands and that grower had to realize on it. Yesterday before leaving Philadelphia I signed a contract with a grower in California for thousands of pounds of onion seed—and his is only one of several growing establishments there—and my contract is two years ahead. The seed will not be delivered until 1908, in the fall. Meanwhile I have to either go myself or send the manager of the trial ground or the manager of my business out to California. We make two trips a year to look over the different crops, one in the fall to see the onion bulbs while they are being assorted.

I think there is one variety, the common flat Danvers, the price of which is as low as 45 cents. From that the price goes up to \$1.25. The average price is about 75 cents a pound. I think from that you can understand that it costs the seedsman, when he has to give certain varieties and produce them, a great deal more; and while \$135,000 seems insignificant, yet when it is divided up into a number of branches, and many people think they are going to get from their Member of Congress, or from the Department, just what they want, and they are not as forehanded as they ought to be in sending in their orders. In that way the indirect injury to the trade is considerable.

I thank you very much, gentlemen.

## STATEMENT OF WILLIAM HENRY MAULE, OF PHILADELPHIA.

MR. MAULE. I had no idea of saying anything on this subject, Mr. Chairman, because I have another one that will only take about five minutes; but to show the unfair competition of the Government I want to emphasize the point brought out by Mr. Burpee. Last year Mr. Burpee and myself received from California 70,000 pounds, at least, of onion seed, which cost us, on a two and three year contract, from 38 cents up to \$1.25 a pound. Onion was a big crop last year. There was a surplusage. The Government bought from a man who had a surplus for 15 cents identically the same seed that cost us, making a three-year contract, three and four times that much. This year the onion crop is a failure, and to help out Messrs. Peter Henderson & Co., one of our largest houses, I shipped them, as a special favor, 500 pounds of a certain variety, at \$2 a pound. There are other varieties that are selling in large quantities at \$3.

Does the Government send out onion seed this year? No, sir; they are looking for seed that they can buy at bargain prices. Consequently the \$132,000 they spent last year represents a first cost to us seedsmen of at least half a million dollars. In addition to that, the postage on that amount of seed costs us almost half a million dollars. Of course it does not cost the Government anything. I had the pleasure of taking a photograph of my package mail one day last March, and I sent it to the President. I made a careful calculation. I had three or four clerks working on it. We discovered that that day's mail was just one three hundred and eighty-third part of the seeds distributed by Congress, and I paid the Philadelphia post-office postage on that amount of seed to the amount of \$296. I think those are the figures. I want to say to you that \$2,000,000 represents the selling value of those goods, but the cost of those same goods to us is very close to \$1,000,000 when we have to pay the postage and expenses, and that does not include the expenses of the business.

I want to say now a few words on a subject of vital importance. I think the Congressional distribution has affected me in my profits for the last four or five years to the extent of \$5,000 to \$10,000 as an individual. I have been in the seed business about thirty years, and run it on rather peculiar lines. I have been running it as what we call a distinctly mail-order business. I do not sell my seeds to dealers, and dealers can not get them. All the business comes directly to me through the mail, and I sell all my products myself directly. If Mr. Burpee or other members of the seed trade want to buy my goods they pay the same as the public would have to pay for them, unless I make a special arrangement personally.

We put our product out in direct orders. They come in \$1, \$2, and \$3 orders, but, on the other hand, for years I have offered \$1,000 in cash prizes for club agents. I started that twenty years ago; \$200 is the highest prize to the man who gets up the biggest club, graduating down to 25 prizes of \$5 each. I have had working for me about 1,100 customers, whose annual order would amount to say \$1.50 or \$2, and about the time they go to send in their order they will hitch up their horse and buggy and go out among their friends and get their neighbors to club with them. Then if a man orders \$10 worth of goods he gets more discount than he would if he ordered \$1 worth.

I think Mr. Davis is responsible for about \$50 loss on my net profit. At least three of my Minnesota customers have written me: "I am sorry my order is not quite as large this year, but I find my Congressman has been around and they have got the Congressional seeds." When I appeared before the Senate committee last year I told this about a man in York County, Pa. I had his letter there dated the day before. He had spent a whole day trying to get orders, and he succeeded in getting orders for about \$1.90 from two other people. Then he hitched up the horse and buggy and came back. He said, "I am very sorry, but I have been out getting a club for you for fifteen years. They never had them before, but somehow this year this country is flooded with Congressional seeds." He said: "I am not going to try any more; I throw up the sponge." That man had sent his order in for a period of ten years from \$22 up to \$36. This year he sent in his own order for \$2, and he got a couple of little orders for \$1.90.

I say right here that this Government free-seed distribution has cost me in the last five years at least \$5,000 as a minimum, and possibly \$10,000, and if there ever was a law acting in restraint of trade I think this comes in under that category, because it is certainly in restraint of trade when you send a man out to get orders and find your customers have got the stuff for nothing. The seeds are good, and it is doing me a personal injury. If they would only give out new seeds, instead of costing me money, it would save me money. I have trial grounds in New Jersey and also in Pennsylvania. Mr. Burpee has followed me. Ever since I got a Jersey trial ground, he had to get one the next year. He has one in Jersey and one in Pennsylvania. We have spent thousands of dollars, and I will take my hat off to him. He spends more money than I do in experimenting. I would not be surprised if there were three or four thousand things tried at Fort Hunt last year, and most of them will never be heard of after this trial.

Mr. DAVIS. Mr. Maule, I will state I do not distribute to my constituents more than one package of seeds.

Mr. MAULE. I am glad to hear that.

Mr. DAVIS. I have constituents who use perhaps \$5 and \$10 worth of seeds, so that if I have injured you so much the customers you have must be very small dealers in seeds, if one package floods your country.

Mr. MAULE. You know that is exceptional, Mr. Davis, for a customer to get one package. They not only get the five, but a good many of them who want them will go out of their way and get five more. It is not a difficult thing to get.

Mr. LAMB. It is impossible to give them five.

Mr. MAULE. Some of them get more than that.

Mr. CANDLER. If we get one around town we are lucky.

Mr. MAULE. As I have said, I have had more correspondence on this subject than any other man in my line of business, on account of distributing these prizes on July 1, and I suppose I am more closely in touch with the business than any other individual man in the seed trade. You can readily see that even with the 40,000,000 the country can not be covered thoroughly, and there are no doubt any number of districts in this country to-day that have never heard of Congressional seeds. Of course when they find out they can get them for nothing

I do not get any orders from them. But we want the Government to distribute new seeds and make experiments. Let them distribute something we do not have in our catalogue.

MR. CANDLER. Do you not know the Government does make experiments and sends out seeds, and that a considerable portion of the seeds they send out is grown by the Department from selected stock, just as you do?

MR. MAULE. Yes; but on vegetables to a very limited extent, I suppose, in spending that entire amount of money. They have gotten some very valuable lettuce experiments at the Agricultural grounds now—they have gotten something valuable in cotton, for instance, and this macaroni wheat. We want them to do that same thing in regard to vegetable seed. Suppose I or Peter Henderson or Mr. Burpee should hear of a new variety. It is cheap at \$1,000.

We pay the man who has hybridized it \$1,000. Let the Government go in and pay that \$1,000 and do the experimenting we have to do and send it all over the country. If it is a good thing the people will be crazy after it. They will all want that seed to raise crops from it, and the seed trade will get the benefit of these new varieties. Now, the seed trade is doing it for the Government, and in four or five years, when the thing gets cheap—never when it is dear—they go in and cut the life out of it by giving it away; but it never happens much under five or six years.

Let me illustrate. I have told this before. I introduced an onion called the Prize Taker. I paid \$1,000 for about 20 pounds of that seed in California. I kept it to myself for four or five years and sold it at 25 cents a package, five packages for \$1. Finally the others in the trade got onto it, and about twelve years after I introduced that Prize Taker onion the Department of Agriculture thought they would put it out. They did put it out, and I have a letter on file in my office, written in the fall of the year, saying, "We are very sorry indeed to discover that the onion that we put out as your Prize Taker was the ordinary Danvers." That did incalculable damage. Do you remember that, Doctor Galloway?

MR. GALLOWAY. I remember something about it. Mr. Pieters told me you were all wrong on it.

MR. MAULE. We have your letter there. That you got that seed from us, and that that seed was nothing but the ordinary Danvers onion instead of this Prize Taker. I heard from people all around. They got this Danvers seed, and it was labeled Prize Taker. I have a letter from the Department saying they were very sorry indeed. That is all the satisfaction I ever got. It must have cost me thousands of dollars.

MR. SMITH. Mr. Chairman, I would like to present Mr. Hathaway, of Rochester. Mr. Hathaway is a banker who has unavoidably gone into the seed business.

#### STATEMENT OF HENRY B. HATHAWAY, OF ROCHESTER, N. Y.

MR. HATHAWAY. Gentlemen, as stated, I come from Rochester, otherwise frequently called the Flower City, the home of nurserymen and seedmen and florists. The seed business is not my chosen profession although I am in it pretty largely. The profession chose me.

I was president and manager of a national bank for a great many years which had the main deposits of seedsmen and nurserymen in our city. We had notably three seedsmen, old and well known as any in the United States, perhaps. One of them, after forty years of business, and two others, after about sixty years of business, having accumulated modest amounts, having supported hundreds of families, and having brought up their own families in their own business, were forced to fail. They failed on the hands of the bank that I represented and got me into the seed business. They lay that failure mainly to the increased circulation or gift of free seeds, which has grown so widely from its original purpose.

As a boy on a farm some fifty year ago, my father was somewhat prominent as an old-line Whig. His Congressman sent him for several years, in the early stages of seed distribution, two or three packages of seeds, with a long request to state the date of planting, the soil, the general conditions, the care they had, the date of flowering, if they did flower, the date of perfection, and the amount grown from the quantity of seed. The sheets containing these questions were religiously taken care of. They were put under the front page of the family Bible, were kept there until fall, when all the facts were ascertained, written down, signed, and sent back to the Department. Those were new and rare seeds. Many, if not all of them, were seeds that we, as farmers, knew nothing about and had never heard of. They were new varieties. That was a test of that soil, of that climate, and that part of the State.

Now, as you gentlemen know, the seeds are distributed by the 40,000,000 packages, and you also know, probably as well or better than I, how they are shipped, how they are dumped out on tables, and people frequently asked to help themselves, the 40,000,000 being about one-third of the entire number of packages of seeds used in the country. The country merchant or seedsmen dare not order, because he does not know how many Congressional seeds will come to that immediate town or whom they will come to, and so in many cases the country merchant waits until so late, and then, perhaps, from a change of Congressman or something of that kind the Congressional distribution is omitted, and so I honestly believe that the Government distribution of seeds decreases rather than increases the number of vegetables grown in the United States.

Mr. Davis has told us about the manner of distribution in his district. One of our Congressmen, a neighbor of your chairman, in order to strengthen his fences, not only distributed his quota of seeds to every name he could get from his poll list, but he bought seeds and exchanged with other Congressmen and distributed those. People in flats, who had no place to plant seeds, unless they planted them as Congressman Roberts said they did in New York, in the bath tub, also received seeds. The seeds that came to Rochester, after being widely distributed and franked, were not used as thoroughly as they could be in that way, but several mail bags full of them were dumped on a long table placed there for that purpose in the business house of this Member of Congress, and people were asked to help themselves.

Those seeds remained there for perhaps a month. People would come in and their attention would be called to them. The porter would point to the table, and they were mostly taken. Perhaps five



or six or eight bushels—quite a lot of them—still lay there, and when the seed season was over they were carried to the basement and used for fuel. That is the history of one distribution of seeds three or four years ago.

Mr. BROOKS. Mr. Hathaway, may I ask you a question?

Mr. HATHAWAY. Certainly.

Mr. BROOKS. You said a few minutes ago that the Congressional seed distribution bore an average ratio to the seeds grown in this country. Have you any data back of that?

Mr. HATHAWAY. There is data that I have seen that the total number of seed packages amounts to less in a given season than 100,000,000. The Government distributes about 40,000,000, and not, as they did forty or fifty years ago, new seeds to test and ascertain what was suitable for central Michigan and what was good for Illionis, and not with the request of the farmer who got them to become a part of the experimental station business, which then was not known; but in those days, if they did not send in these reports, made out, they did not get a second lot of seeds.

Mr. BROOKS. This is purely for information, but if you are comparing just numbers of packages, of course that comparison would be quite inadequate, because the package that the Government sends out is very small as compared with the ordinary packages that I see in the seed stores. So I should question your conclusion a little. I would like some information on it. That is all I want.

Mr. BURPEE. As Mr. Hathaway has told you, he is a banker and not a seedsman. I will explain that. What was meant by Mr. Hathaway saying that 40,000,000 was a very large proportion of the seeds used in this country was in reference to the small, flat packages that retail at 5 cents, or two for 5 cents; but the great bulk of our business is different from that. In my own business we would sell of those flat packages not more than 1,800,000, or 1,500,000 to 2,000,000. That would be all we would sell, and that would be a very small proportion of the total quantity of seeds sold. As Mr. Hathaway said, the market gardener, or even the private gardener, who wants a large garden for a family, has to buy the seeds by the pound, by the pint, or the quart. That answers your question about the larger packages.

Mr. BROOKS. The question is this: In your judgment what would you say is the proportion the Government distribution bears to the annual consumption of seeds?

Mr. BURPEE. It is very insignificant. I will illustrate that. Yesterday before I left the office, in looking over some mail that had arrived, I found one order from Florida for 19½ pounds of tomato seeds, \$6.50. That is a very high price for tomato seeds, but the man wanted a very good variety. That man is not at all affected by the Government distribution. If he gets a package of tomato seed or a package of pumpkin seed, it is not sufficient to produce the quantity he wants.

Mr. BROOKS. This does not indicate my position in regard to the matter, which is pretty well known in the committee. The fact is, is it not, that the Government distribution is very small in bulk as compared with the consumption of seeds in the country?

Mr. BURPEE. Very small in bulk; yes, sir, but very large in comparison with the consumption of package seeds.

As Mr. Maule said, in the mail-order trade—and our house is also exclusively a mail-order house—the profitable part of our business is in the multitude of small orders. In February and March our mail runs from 3,000 to 7,000 letters a day, and the average order is in the neighborhood of \$1.50. Last year, as well as I can remember, the average order was \$1.75, which was very good; 25 cents makes a great difference in a day's receipts. Those orders of 50 cents and \$1 and \$1.50 are largely composed of these small packets.

Mr. BROOKS. And they are the ones with whom the Government competes?

Mr. BURPEE. They are the ones with whom the Government competes.

Mr. BROOKS. Getting at it in another way, suppose you eliminate the wholesale consumer, if you will; that is to say, a market gardener on a considerable scale, who buys more than a dollar or two of seeds in a year. What proportion would you say, in your judgment, the Government distribution bears to the remaining seed consumption; that is, the retail seed, the little fellow who buys only a small amount.

Mr. BURPEE. To answer that you would have to take into consideration not merely the small packets—but what you want is a private plant—if you had a garden?

Mr. BROOKS. Yes.

Mr. BURPEE. If you had a garden you would send in an order of \$2 or \$3, or if you had a large family, \$5 or \$6; but if you sent in an order for \$2 or \$3, in that packet you would want certain seeds by the ounce, like radish seeds. You would want other seeds, like peas and beans and sweet corn, by the pint or quart. Those would not be flat packages, like the Government distributes. The Government only distributes radish seed put up about four to the ounce, and peas and beans in small packets, so it would be impossible to answer that question any further than Mr. Hathaway has stated, that when the Government distributes 40,000,000 flat packages, probably not many more than that are sold by all the houses in the country.

The CHAIRMAN. What is the market value of the Government seed distribution?

Mr. BURPEE. If the seeds were sold?

The CHAIRMAN. Yes. Put up exactly as they are by the Government and sold by an individual, what is the market value of them?

Mr. BURPEE. The market value of those 40,000,000 packets would be \$800,000.

The CHAIRMAN. What proportion would that bear to the whole seed sales?

Mr. BURPEE. The whole seed sale of the country, of course leaving out grass and clover seed, which is a large volume—

Mr. LAMB. \$10,000,000.

Mr. BURPEE. It is more than \$10,000,000.

Mr. LAMB. \$12,000,000, I think.

Mr. BURPEE. I should think it is more than \$12,000,000. There is one house in Detroit, D. M. Ferry & Co., whose annual turnover in vegetable seed alone would be \$1,000,000, I think, at least. I should think, Mr. Chairman, the garden seed industry of America, the annual turnover, would be \$20,000,000, and probably more.

Mr. MAULE. It is between \$10,000,000 and \$15,000,000.

Mr. LAMB. I have the figures in my office. I think it is about \$12,000,000.

Mr. BROOKS. Then that does become quite serious. That would be about a sixteenth of the whole consumption.

Mr. MAULE. That is the entire turnover, ounces and bushels.

Mr. BURPEE. I should put it a little higher than that.

Mr. CANDLER. You say you think the seed distribution furnished by individuals and sold by individuals would be \$800,000?

Mr. BURPEE. Yes, sir.

Mr. CANDLER. The total amount of seeds the Department bought last year was \$163,273.75.

Mr. BURPEE. But I explained to you a little while ago how they got a good deal more than they got from the seedsmen. The cry from your fellow-members has been for more packets, so that while they buy good seeds, they buy the seeds they can get the cheapest. For instance, last year they bought first-class onion seed at 15 cents a pound, but to-day it would cost them \$1.50 to \$3 a pound—the same seed. The point I make is that the volume of money, \$135,000, buys many more seeds for the Government, when the Government can take any variety, than it would purchase for a seedsman, who must have a complete assortment.

Mr. DAVIS. What would prevent the seedsmen from buying the same stock the Government buys?

Mr. BURPEE. Because onion seed is a biennial, like cabbage, cauliflower, and celery, and the seedsman, to have his stocks true and selected stocks of the same varieties, that will produce identically similar products, must have those crops grown for him. We do a business exclusively by mail. I never go out in the market and buy a pound of seed unless there is a failure of our crops, and to insure against that failure I carry ahead, in an outside warehouse, a year's stock of all my seeds, like cabbages, cauliflower, celery, tomatoes, etc. I have two warehouses in Philadelphia. In order to provide against this failure of crop, and also to insure that the seed is good, a seedsman has to provide ahead and has to make these contracts. The Government in distributing seed gets some of them by contract, but others by circular.

Mr. DAVIS. Then your idea is that the Government only goes into the business when they can buy these bargain sales?

Mr. BURPEE. Oh, no.

Mr. DAVIS. What proportion of the Government distribution is a bargain sale?

Mr. BURPEE. Doctor Galloway could answer that much better than I could. I really do not know that.

Mr. WOOD. I will explain to you. You have heard the surplus spoken of here. You take a man in Michigan growing beans for you. That is his particular crop to grow. You arrange with him to plant enough beans to produce you 500 bushels of Valentine beans for next year's trade. Suppose that man plants that crop, say 1 bushel for 10. He expects to get 10 bushels of the beans from every 1 bushel he plants. If he does not get it, if he only gets 7 bushels from every bushel he plants, the seedsman is short. If he gets 15 bushels from every bushel he plants, the seedsman gets 500 bushels, and the man has 250 bushels to offer to anybody who wants to buy.

He can not get the price he contracted for, because every seedsman has had his stocks. Consequently he has to sell it to the best advantage he can.

He can not carry it over to the next year. That is where the surplus comes in. Mr. Hathaway's business has been affected in this way. He puts out his business in the small country stores. There is a box of seeds, containing 200 or 300 packages to be sold by the little country merchant, for which the merchant realizes probably 40 or 50 per cent on what he sells. If the merchant does not sell that seed because of the fact that the Congressional seed distribution floods that country, then Mr. Hathaway, instead of selling 50 per cent of that box, gets it back with only 25 per cent sold. And he has to throw that stuff away.

Mr. DAVIS. He could resell it to the Government?

Mr. GALLOWAY. No; he could not, either.

Mr. WOOD. Doctor Galloway would not pass it.

Mr. HATHAWAY. One word more upon this subject. The seed houses I had to take—and they were names that are as familiar to many of you as the name of your chairman—while they did a retail business, and a mail-order business to some extent, depended for their main business upon these boxes of commission seed which you find in every drug store and grocery store among your home stores. In the old days we sent out packages of flower seed and vegetable seed on commission, 40,000 or 50,000 of them to different people all throughout the United States. The proprietor of the grocery store or drug store would perhaps sell half the box. He would perhaps get \$10 or \$15 of sales, 40 per cent of which he would retain, and turn over \$6 or \$8 to the seedsman's agent when he went around in the fall to collect up.

Since the Government's free seed distribution has grown to such proportions, particularly since it was doubled two or three years ago, those boxes are sent out with the same care, with quite as large freight charges, and quite as much expense in putting them up, and the drug-gist will sell perhaps \$4 or \$5 worth out of it, 40 per cent of which he keeps, and turns over perhaps \$2.50 or \$3, or \$4, and occasionally \$5 to the seedsman's agent, and that is all used up in actual work. There is not only not a profit in sending out these commission seeds, but in many cases it will prove to be quite a serious loss, and that is what has made the seedsman go to pieces. The business of firms of forty to sixty years standing are the ones I have become interested in, and it is because of the Government free distribution that many people will not order through our mail orders, because the Government seeds are not all gotten out early. People do not know when they are coming. They hold their orders until it is too late to plant successfully, and they do not buy.

As I said before the Senate committee last spring, I believe the Government seed distribution actually curtails the number of vegetables grown in the United States.

Mr. LAMB. That would be impossible.

Mr. COCKS. Has your trade on Long Island fallen off in the last year?

Mr. HATHAWAY. It has fallen off in Long Island, I think.

Mr. COCKS. You do not know of anything in particular about Long Island business?

Mr. HATHAWAY. No.

Mr. COCKS. I never send over two or three packages and generally only one to any one person. It seems to me it would be impossible to affect the trade. My constituents are largely market gardeners. Of course I do not send to them. They do not care anything about it, but I have sent to small farmers and people living in villages, and I imagine the amount sent to each one could not possibly have affected the business.

Mr. HATHAWAY. The effect is general. In some towns there is a little laxity, or they change Congressmen, and the Congressman does not have quite as full a list. He does not know that the way of distributing is through the post-office, or through his town committeemen. In some cases the sales are better than others, but there is a general falling off. We ship from Texas to the Indian Territory, in almost every village and town, and many crossroads.

Mr. LAMB. Would one package of those seeds plant a garden as large as half of this room?

Mr. HATHAWAY. It would depend on the seeds. In some instances it would plant more and in other cases very much less.

Mr. LEVER. Your whole contention is that this Congressional seed distribution injures the seedsmen?

Mr. HATHAWAY. That is not my whole contention. I believe it is a contradiction of the terms of the law under which you are working, which provides for the distribution of and experimenting with new seeds and their introduction. That is the way it started. They did not send out pumpkin seeds or squash seeds or any of the old seeds that had been grown pretty near back to Adam's time.

Mr. LEVER. And to continue the distribution under the old law, as you interpret the intention of it, would not hurt the seedsmen, but would rather help him, would it not?

Mr. HATHAWAY. I think every seedsman would welcome the appropriation being expended in experiments with new and rare seeds, getting them from abroad and distributing them in various parts of the country. We have now what we did not have in those days—experimental stations, which will be of incalculable value. You send the Geneva experimental station half a dozen or a dozen or 50 varieties of these seeds, and the probability is that with careful management and good conditions they will report ten or fifteen of those to be of great value in western New York.

Mr. LEVER. Do you think it is within the province of the Government to even find and introduce new varieties of seed?

Mr. HATHAWAY. That is the wording of the bill, as I remember. It does not contemplate that the Government will go into the seed business and give away seed. It is for the purpose of introducing and experimenting with new seeds which they hope will be of value to the people in some portion of the United States.

Mr. LAMB. Have you read that law carefully?

Mr. HATHAWAY. I have read it a number of times.

Mr. LAMB. I invite your particular attention to it when you get the opportunity.

Mr. FIELD. Has not this industry as a whole, in the last few years, maintained itself very well? Have not the seedsmen maintained their standing and made a reasonable profit on the investment?

Mr. HATHAWAY. I do not think they have. They certainly have not in our part of the country; and we have almost a garden spot there.

Mr. DAVIS. Then, as I understand from the remarks of yourself and the other gentlemen this morning, the opposition to the free distribution of Congressional seed arises in consequence of the damage it does to the seedsmen?

Mr. HATHAWAY. That of course is what affects us.

Mr. LAMB. Does your argument apply likewise to the flower seed? You have not said anything about the flower seed.

Mr. HATHAWAY. The flower seed we do not hear so much of. I think many of the packages do not contain flower seed; do they, Doctor Galloway?

Mr. GALLOWAY. About 10 per cent of the whole is flower seed.

Mr. HATHAWAY. The flower seeds are a little different.

Mr. GALLOWAY. They go mostly to school gardens, however.

Mr. HATHAWAY. Yes, sir; they go in directions where they do not hurt.

Mr. LAMB. They go to every pretty young woman in my district I can get them to.

Mr. HATHAWAY. Last year some of the seedsmen had to chip in and send, upon request, flower seeds to people who had not received them.

Thank you, gentlemen, for your attention.

Mr. SMITH. Mr. Chairman, is it your pleasure to continue further?

The CHAIRMAN. It is after 12 o'clock, and the House is in session. Will the committee hear another gentleman now, or would they prefer to go on to-morrow morning?

Mr. SMITH. Could you hear us this afternoon? Some of the gentlemen have come a long distance and want to get away. Mr. Wood, for instance, is here with his wife and several parties, and they are very anxious to continue on their way. He is one of the most important men in the seed trade. He is the president of the American Seed Trade Association.

The CHAIRMAN. How long would Mr. Wood want?

Mr. SMITH. Ten minutes, he says; and I would like to say this: Of course these gentlemen are speaking entirely from the standpoint of the seedsmen whose business is injured, they think, by this distribution. Later on we will try to present arguments from other people who think the distribution is wrong; also some from the farmers.

#### STATEMENT OF HENRY W. WOOD, OF RICHMOND, VA.

Mr. Wood. I want to answer one or two questions that have been asked. The gentleman from Long Island spoke about distributing the seeds to village stores and others, and about its not affecting the sale of these package seeds by the stores in the immediate neighborhood.

Mr. COCKS. Oh, no; I said I sent only one package to each individual addressed to him.

Mr. WOOD. But there are five packets in them.

Mr. COCKS. There are five packets in them, but I send no more than that, except in rare cases.

Mr. WOOD. The market gardeners do not buy these packet seeds.

It is the small gardeners around the villages and others who buy the package seeds.

My friend Captain Lamb had an interview in the Richmond Dispatch of December 11, 1906, and there is a matter there which probably opposes the sentiments of some of the other Members. I would like to answer that. This is what the article says:

Captain Lamb, of the Richmond district, said to-day that there will be a series of hearings Wednesday before the House Committee on Agriculture on the question of a distribution of free seeds by the Department of Agriculture and Members of the Senate and House. He said that the hearings would be practically all taken up by seed dealers and those whom they have succeeded in interesting in the matter.

He says that it is more than likely that the committee will repeat its action of last session and vote to strike out the free seeds, but that when the matter comes up on the floor of the House the free seeds will be authorized again by an overwhelming vote. He said that it was his experience that these seeds are demanded by the best class of farmers in his district, and that inasmuch as many of the seeds are such as can not be gotten from seed dealers, they are particularly valuable in that they give the farmers a chance to get the best seeds and to improve the vegetables and flowers of the communities into which the seeds are sent.

Mr. LAMB. And I stand by that right straight along.

Mr. WOOD. Captain, I am with you. We are not opposed to the distribution of new and rare seeds. We are only opposed to the distribution of the common and ordinary seeds. We say the Government is doing good and has been doing good by the distribution of rare and new seeds. The only thing we are opposed to is the distribution of common, ordinary seeds. It looks to me, as a matter of simple justice to the seedsmen, as if the Government of this country should not enter into competition and should not try to throttle and hurt the business. I know it does hurt the seed business by the distribution of these seeds. I will give you some instances.

I had one order from North Carolina. A man made out a list of seeds to the extent of \$6 worth. After he got through he ran his pen through the items and struck out \$2 worth. He said, "I find I have those seeds sent me by my Congressman," and he struck out 33½ per cent. We have letters from merchants all the time where these seeds are distributed. They say, "Our sales are falling off because our Congressman sends seeds into this district." It affects the merchants who handle seeds all through the Congressional districts.

Captain Lamb speaks about the large number of inquiries he has, and where a farmer gets it in one section he lets others know about it, and of course it is only human to want anything that is free. We got out a little celluloid bookmark, a pretty little thing, and we had an inquiry from a little girl in New Orleans.

We mailed it to her, and we had more than 100 postal cards and letters from school girls in New Orleans asking us to send them this celluloid bookmark. Anybody who can get anything free is going to get it, as a matter of course. Gentlemen, it seems to me you ought to look at this thing from a fair and square standpoint. This Government ought to help the business interests of the country, and it ought not to try and do us an injustice and compete with us unjustly. It ought rather to help us. We want to help the Government. We want to help in these matters in any way we can, in regard to rare and new seeds.

Mr. DAVIS. Do you know any greater business in this country than that of the agriculturist?

Mr. WOOD. I do not; and I do not know of any business the United States Government pays more attention to. It devotes millions of dollars toward helping the farmer. Another statement in this same paper says the farmer gets very little from the Government. There is no class of people who get more from the Government than the farmer. We have the Department of Agriculture to look after the interests of the farmer. If a man's cattle have cattle diseases, he can write to the Department and get assistance. If he wants to know what a certain grass is, he can get it from the Department. He can get from the Department books and bulletins on every subject he wants to know about to educate him in his business. There is no other class, no other trade, no other business that begins to get one iota of the assistance that the farmer gets.

Mr. DAVIS. Do you know how much money is spent on the agricultural industry of the United States?

Mr. WOOD. I do not know, but it must be several millions.

Mr. CANDLER. In the last bill it was \$7,000,000.

Mr. WOOD. We have only recently established a Department of Commerce and Labor, and of course that covers vastly larger investments than the agricultural industry.

Mr. LEVER. In this country?

Mr. WOOD. I suppose so.

Mr. LAMB. You are very much mistaken.

Mr. WOOD. Anyway, there certainly is no class and no trade that receives more than the Department of Agriculture. We simply ask you to look at this thing from a fair, square standpoint.

Mr. LAMB. As you have referred to me personally, I wish to say that the exports of this country amount to \$1,500,000,000, and the farmers of the South furnish \$631,000,000 of that amount.

Mr. WOOD. I thank you, gentlemen; I simply wanted to bring out those points.

The committee (at 12.15 o'clock p. m.) adjourned until Thursday, December 13, 1906, at 10.30 o'clock a. m.

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THURSDAY, *December 13, 1906.*

The committee met at 10.30 o'clock a. m.; Hon. J. W. Wadsworth in the chair.

The CHAIRMAN. Mr. Smith, you may proceed.

Mr. SMITH. Mr. Alexander Forbes, of Peter Henderson & Co., seedsmen, of New York, will be the first speaker on our side this morning.

**STATEMENT OF MR. ALEXANDER FORBES, VICE-PRESIDENT  
PETER HENDERSON & CO., NEW YORK CITY.**

Mr. FORBES. Mr. Chairman and gentlemen, I think it was the Hon. John Wesley Gaines who complained when the seed appropriation bill came up before the House last April that they had never heard from the seedsmen in any shape or form. We thought it was about time that we came forward to have something to say in this



matter; but we also remembered that we were here about six years ago, which was the last time I had the honor of addressing this committee.

At that time we presented ourselves and tried, if possible, to get the committee to take action in the matter, but nothing came of it. In fact, when we got back to the hotel we found that while we had been talking here Senator Tillman had succeeded in getting an extra appropriation of \$100,000 for the Congressional free-seed distribution. We thought that was not very encouraging, and consequently we did not return to the charge; but now that they would like to hear from the seedsmen we thought we would come here and do all we could to lay our views before you.

There will be one or two speakers who will speak for the seedsmen to-day; but there will also be some gentlemen representing the agricultural press who will be able to tell you something from their standpoint. We also hoped to have the master of the National Grange to speak from the farmers' standpoint, but he is unavoidably absent. We have a letter from him stating that he could not come. We will have, however, his letter and some resolutions from the National Grange, from the Farmers' National Congress, and from various State granges throughout the Union, and kindred societies, such as horticultural and agricultural societies, all over the country. We will also have letters from experimental stations, showing that they are very strongly in favor of the abolition of the Congressional free-seed distribution as now conducted. We will also have an exhibit here from Long Island, in the shape of a bundle of seeds that were rescued from a fire. We have a bundle of them and all these will be laid before you to-day.

#### FREE SEEDS DESTROYED BY FIRE.

This [indicating] is an exhibit of some Congressional free seeds that were found on Long Island, somewhere about Woodside, Long Island, I think, by Mr. Beaulieu. He rescued these. They were being burned in a pile outside of a store.

Mr. CANDLER. Were they put up in this way, in these boxes?

Mr. FORBES. No; they were all in a heap, as I understand it. I did not see the seeds myself.

Mr. CANDLER. They have been put in these boxes in this way by you?

Mr. FORBES. Yes; they were simply in a heap. We put them up in boxes for convenience, to show them by varieties.

Mr. CANDLER. I simply wanted to know. I never had seen them sent out in boxes like these.

Mr. FORBES. They were simply put in a pile, and the seeds themselves are as we found them.

Mr. LAMB. They are your boxes. The Government has nothing to do with the boxes?

Mr. FORBES. No, sir; they were promiscuously mixed up, and they were taken as they were found.

Mr. CANDLER. Whose district were they found in?

Mr. FORBES. I do not know just whose district. It is Woodside, Long Island, where the seeds were burned, and they bore the frank of Charles Towne, I believe. Some of them bore the frank of ex-Representative I. E. Rider, who preceded Mr. Towne. This exhibit,

gentlemen, shows that these seeds get into the hands of a great many people who really do not know what to do with them. They find their way to the post-office. The people are asked to come and help themselves and take them away, and when they do not get distributed, as in this case, they have to be destroyed in some way.

Mr. DAVIS. Does that hurt the seedsmen to have them destroyed?

Mr. FORBES. I do not know that it does.

Mr. LAMB. Suppose they were all destroyed in that way. What would be the result so far as you are concerned? They would not come in competition with you then, would they?

Mr. FORBES. No; not if they were destroyed by fire.

Mr. SCOTT. Where did you say they were found?

Mr. FORBES. Woodside, Long Island.

Mr. SCOTT. Under what circumstances?

Mr. FORBES. They were simply being destroyed, and one of the florists in that neighborhood saw the heap when they actually touched a match to it, and he went and got a bag and helped himself to about a bushel of them.

Mr. SCOTT. They are addressed to a number of different persons, are they?

Mr. FORBES. No; they are not even addressed.

Mr. SCOTT. Were they being destroyed by the postmaster?

Mr. FORBES. No.

Mr. SMITH. In order to save a little time, if I may interrupt Mr. Forbes for a moment, I will say that when I get the opportunity I will present the letter of the gentleman who found these seeds being burned, which will explain all we know about these seeds.

Mr. HASKINS. Were they all franked by Congressman Towne?

Mr. FORBES. Yes; most of them have Congressman Towne's frank, but some bore the frank of Mr. Rider.

Mr. SCOTT. Inasmuch as this matter has come up now, I do not know why it would not be the best way to have the letter appear in the record at this time. It would be a matter of some interest to know how it happened that these seeds did not interest the persons for whom they were intended.

Mr. SMITH. If I may interrupt Mr. Forbes, I would be glad to present it now.

The CHAIRMAN. We will be glad to have you do so.

Mr. SMITH. We heard from Mr. Beaulieu that he had found these seeds. I heard also from Mr. Forbes that these seeds had been brought in to him. I wrote to Mr. Beaulieu and asked him how he came to get these seeds, and he says:

BEAULIEU, SEEDSMAN AND FLORIST,  
Woodhaven, N. Y., August 23, 1906.

WILLIAM WOLFF SMITH,  
Washington, D. C.

DEAR SIR: I have your favor of yesterday. I am answering the best I can. I saw the seeds burning myself in the morning of August 9. Some who saw them say there was a truck load. I saw the heap—also Mr. Muret, on Thompson avenue—about 25 feet from the curb, 4 feet high and at least 5 feet deep, and lots of seed packets and envelopes scattered all over the garden. It covered 100 feet square, at least, with the name of Charles Towne and I. E. Rider, M. C., on the free Government packages.

Mr. Schmelenski's men saw it; they are Polish people, and you find out their names. As far as I can learn, they came from an ex-borough president of ueens; all that I am not certain and I can not tell name yet. The fire was

on August 9. Only on the 15th I went to get proof, and I have bought for \$1 half barrel of free seeds from Schmelski or the foreman, I couldn't exactly say. Anyhow I had the goods and show the Florists' Exchange's editor, proprietor, etc. Mess. Peter Henderson got the free seeds. Now, I am going to write a letter to Mr. Schmelski and ask him where he got the goods. Then I will let you know, if I have an answer. I thank you for your favor. I am going to do all that possibly can to stop the free seeds business.

Yours, respectfully,

BEAULIEU.

The CHAIRMAN. You introduce this as evidence to show that a great proportion of the seeds distributed through Congressmen go amiss and answer no good purpose. That is what you want to show?

Mr. FORBES. Yes.

Mr. SMITH. If I may be permitted to say it, the more seeds that go in this way and the more that are destroyed, as I understand the seed business, the better the seedsmen like it. But we oppose this not only as seedsmen; other people will speak to you. We have letters and resolutions from people all over the country, not seedsmen, but citizens and taxpayers. Where you spend our money for seeds and they are sent to Long Island and burned up you waste our money.

Mr. LAMB. Do you not understand, my friend, that that is the exception to the rule?

Mr. SMITH. Pardon me. I can not say that I do know it.

Mr. LAMB. I can readily see that it is the exception.

Mr. SMITH. I have letters from postmasters and letters from agricultural experiment stations, and they practically all say the same thing, that they do not want any more of these seeds, and many of them tell how the seeds are addressed to dead persons or others who have moved away, and how they are finally destroyed to get rid of them.

Mr. CANDLER. What business is Mr. Beaulieu in?

Mr. SMITH. Fancy seedsman, he calls himself.

Mr. FORBES. Market grower and florist, in a small way, I believe.

Mr. SMITH. I have a number of letters on this subject, showing this is going on throughout the country.

Mr. FORBES. This collection of seeds represents, as I understand it, an average list of varieties, about the run of varieties that the Department is using in the Congressional free-seed distribution.

I have separated them out in sorts and made a list of them here, and without exception they are about what we might call as ordinary a list of varieties as you will find in any and all of the seedsmen's catalogues. There are 114 packages of Hollow Crown parsnips presented in the exhibit, which has been catalogued by the firm I represent since 1879, and, perhaps, before that. There is lettuce—the White Seed Simpson and Black Seed Simpson—also introduced by us as far back as 1876, I believe; and the Purple Top White Globe turnip, of which there are 96 packages here, has also been catalogued all that time. In fact, I think the most recent introduction is perhaps the Livingston "Stone tomato," which was brought out in 1894, and that is twelve years ago. That is about the run of the varieties that the Department sent last year, and has for many years past been sending out.

#### COMMON VARIETIES DISTRIBUTED.

Here is a table showing the number of packets of Government free seeds rescued from a bonfire on Long Island by Mr. Beaulieu,

showing the number of packets of each variety, the variety, and when such variety was first introduced:

No. of packets.	Varieties.	When introduced.
114	Parsnips, Hollow Crown .....	Catalogued by P. H. & Co., 1879.
	Lettuce:	
3	W. Seeded Simpson .....	Do.
3	B. Seeded Simpson .....	Do.
	Turnip:	
96	Purple Top White Globe .....	Do.
12	Purple Top Strap Leaf .....	Do.
30	Early White Flat Dutch .....	Do.
1	Tomato, Acme .....	Do.
36	Onion, Round Yellow Danvers .....	Do.
	Radish:	
33	French Breakfast .....	Do.
52	Scarlet Turnip, white topped .....	Do.
98	Lettuce, Salamander .....	Catalogued by P. H. & Co., 1884.
176	Tomato, Perfection .....	Do.
38	Muskmelon, Bay View .....	Do.
33	Radish, Wood's Early Frame .....	On the market at least thirty years.
	Lettuce:	
114	Hubbard Market .....	Sent out by Chase Bros. about 1875.
10	Giant White Cos .....	Sent out by W. A. Burpee & Co. about 1882.
5	Hanson .....	Sent out by Dreer about 1875.
1	Crisp as Ice .....	Sent out by Livingston in 1894.
9	Denver Market .....	Sent out by Barteldes in 1890.
1	Tomato, Stone .....	Sent out by Livingston about 1894.
22	Onion, Australian Brown .....	Sent out by W. A. Burpee & Co. about 1899.
	Muskmelon:	
37	Acme of Baltimore .....	Catalogued especially by P. H. & Co., 1886.
76	Rocky Ford Netted Gem .....	Sent out generally in seed trade about 1888.
6	Radish, Improved Chartier (Beckert) .....	Catalogued as special by P. H. & Co., 1886.

Mr. FORBES. It seems to me that that is not what was intended when this bill was first introduced. These varieties are really the kind of varieties you can get at almost any seed stand or any corner grocery store anywhere in the land, and it seems to me to be a waste of effort on the part of the Department and of Congress to be distributing this kind of seed—these antiquated varieties, these old-fashioned kinds that we have been used to from boyhood up.

#### SHOULD DISTRIBUTE VALUABLE SEED.

I think if they would turn their attention to newer and rarer and selected varieties of vegetable seeds there would be some good come of this Congressional free seed distribution even if they should send out smaller envelopes and fewer varieties. I know that seedsmen from time to time have tried to get the Department of Agriculture to take that view, and time and again have offered the cream of their specialties, but it has no interest for them.

They simply say that they can not afford to give the prices for these things. Perhaps that is so. We, as seedsmen, have to pay very, very tall prices for lots of these new things. Mr. Burpee, who was here yesterday, told me that he has within the past two months paid several thousand dollars for a new bean just because he thinks it is going to be a good thing for dissemination. We have all had that experience; and when they offered them to the Department of Agriculture they did not want them. They would rather buy onions at 15 cents a pound in California.

## CONGRESSMEN DECLINE NOVELTIES.

Doctor GALLOWAY. I beg to differ with you. The fact of the matter is that the Department has made efforts time and time again to introduce these novelties, and has secured time and time again the cooperation of the seedsmen in that direction; but it is not a question of the Department at all. The Department is in a position where it must furnish a certain number of packages of seeds, and that is all there is to it.

Four years ago they made an effort to introduce novelties, and we got some from your firm, I believe, and we got some from a number of firms. We had those things left on our hands. Nobody wanted them, and we could not get rid of them. After that we took the ground that those things are not things to distribute, and under the existing system which has been in vogue for the last forty years, we simply had to give the matter up and go on with the distribution of ordinary seed that is found, as you say, in every store. But I do not think your position is a good one. It is not proper, and it is not right, and it is not justice to the Department to say that they refused them. We never have said that we want a cheap seed, because that is not what we want.

Mr. FORBES. I will have to go higher then. If it is not the Department of Agriculture, it is Congress that has called for this kind of seeds.

Mr. HASKINS. That is where you strike it.

Mr. LAMB. May I ask Doctor Galloway a question?

Doctor GALLOWAY. Certainly.

Mr. LAMB. I understood from you in a previous hearing—and if I am wrong I hope you will put me right—that a considerable portion of these seeds are grown from your own stock.

Doctor GALLOWAY. It is grown only in a limited way from our own stock, Mr. Lamb. It would be impracticable for the Department to handle its own stock as seedsmen handle their stock and furnish to Members of Congress 12,000 packages of seeds. If we were required to furnish only a limited number, we could handle our own stock and could handle our own varieties, as seedsmen do.

Mr. LAMB. I quote from page 6139 of the Congressional Record, Doctor Galloway, in answer to a question of Mr. Scott:

In the first place, a considerable portion of the seed is grown for us out of what we call our own stock.

Doctor GALLOWAY. That is true.

Mr. LAMB. May I ask Doctor Galloway where he gets all of his bulbs of onions from to grow this special stock?

Doctor GALLOWAY. It is grown in California. We buy our seed from California and do not control the bulb stock.

Mr. LAMB. Where do you get your celery seed?

Doctor GALLOWAY. We do not distribute any.

Mr. LAMB. And lettuce and tomatoes?

Doctor GALLOWAY. It is grown in the same way.

Mr. SCOTT. I would like to ask a question bearing on the statement Doctor Galloway made a moment ago. I understood you to say that you had tried to distribute new varieties, but the Congressmen would not accept them, and you had therefore had them left on your hands and were obliged to furnish the common varieties.

My experience has been that the Congressman has had nothing to do with the selection of the varieties that were sent out; that he simply furnished his slips and the Department attached them to the packages of seeds which in their judgment would afford the best results in that district. I am rather surprised to hear the statement that Members of Congress have refused to accept new and unusual varieties. Did you mean to give that impression?

Doctor GALLOWAY. Yes, sir. Four years ago, or five years ago, when this work was first turned over to the Bureau of Plant Industry, one of the kinds of work that we inaugurated was the securing from seedsmen of novelties. We addressed communication to firms like Burpee and Peter Henderson & Co.—

The CHAIRMAN. What kind of novelties?

Doctor GALLOWAY. Rare vegetable seeds, not commonly catalogued, and still to a large extent on the trial grounds. Seedsmen always work ahead and are getting in from different sources and places these promising new things that are sent to them.

The CHAIRMAN. Things not beyond the experimental stage?

Doctor GALLOWAY. Many of them were not, but some had been introduced and were in the catalogues and were controlled by the seedsmen. We gathered together forty or fifty of those novelties in such quantities as we could get—a pound or two of this and a pound or two of that—and put them up in special packages in special colored envelopes to distinguish them from the ordinary seed; and instead of assigning a certain number to each Member, as is the common practice with the ordinary seeds, we wrote each Member a communication stating that we had the seeds, what they were and how to get them, and what we proposed to do with them. We had about half of those seeds left on our hands and carried them for two years, either because the Members did not understand what they were or did not let us know that they wanted to send them out. They were left on our hands.

Mr. CANDLER. How many packages or envelopes were offered to each Member?

Doctor GALLOWAY. I think we had about 500. But the point is this: In all probability those small numbers are really more of a hindrance to a Member than a help, for if he sends out 500 it will make a demand for 5,000.

Mr. CANDLER. And he would get requests that he could not fill.

Mr. HASKINS. I received my quota.

#### SEEDSMEN FAVOR VALUABLE SEED.

Mr. FORBES. We seedsmen would like it if you would turn your attention to the newer, rare, and more valuable varieties, either at home or from abroad, and give up this distribution of the common, ordinary, and antiquated varieties. I am sure that the Department of Agriculture, from what I have learned from various members of it from Secretary Wilson down, would be glad to have Congress do this also.

Mr. DAVIS. You would like the Department to go to the expense of introducing or propagating this new variety of seeds and then allow the seedsmen to sell them to the farmers at high prices. Is that it?

Mr. FORBES. I beg your pardon, Mr. Davis. We do not look for that assistance. We have been able to take care of ourselves in that way all these years.

Mr. DAVIS. I understood that the first expense in bringing forward a new seed you wanted to get rid of, and have the Department do that, and then allow you to distribute them at high prices?

Mr. FORBES. No; we are willing to go on as we are going; but if Congress wants to assist us to the extent of helping us to find new, rare, and valuable varieties, such as we can not reach, we would be glad to have the assistance. You know, we travel far and near, going to Europe, to California, and sometimes to Australia, and have been hunting for newer varieties for decades. We are doing it, I think, fairly well.

Mr. DAVIS. But as soon as the seed becomes generally known do you not want Congress to stop distributing it and let you distribute it—as soon as it becomes well known?

Mr. FORBES. We have a perfect right to get the same seeds that Congress will be instrumental in bringing into the country. We have a right, in common with the general agricultural public, to procure some of these new, rare, and valuable varieties that the Department will be instrumental in bringing in, and I hope they will be able to show us the way better than we have been doing it thus far.

Mr. DAVIS. But I am getting at the result, when the Department gets the seed established. Then you want them to drop the distribution?

Mr. FORBES. Certainly. It would only become like this list, an antiquated variety. Pretty soon everybody would have it.

I will just close by saying that about the time we last addressed this committee there was a gentleman who came into our office in New York in great trouble. He said he had had a letter from his head office in Detroit, Mich., saying that the Department of Agriculture was about to introduce or prepare for free distribution one of the articles they were manufacturing. I asked him what it was, and he said it was one of their principal things—they were in the medicine business—hog cholera mixture. He said it was something that they had made a specialty of all these years, and it would be a very serious harm if the Department of Agriculture should distribute this free.

He asked what they could do. He said he understood that they had been distributing seeds in this way for years, and asked if we could advise him what to do about it. I said:

We can not advise you one way or the other. We have been trying to get the Department to cease this Congressional free seed distribution for years, and the more we try to get them to take this off, the more they put on.

And, as I remarked when I was here before, an extra \$100,000 was given on that occasion.

#### GIVE SEEDSMEN A REST.

I think it would be well, if Congress must give things like that to the farmers, that they give something else a turn, and let the seedsmen have a rest. We have really had this thing before us from before the civil war, and it seems to me there are other things that

they could at least try. I do not see why they should not be able, for instance, to send out nitrogen-gathering bacteria. It can be mailed. It seems to me that would be a very valuable thing to distribute, with a Congressman's compliments, to agriculturists throughout the length and breadth of the land. I do not know whether it has occurred to any of you gentlemen to think of that.

Mr. LAMB. I will send out all I can get.

Mr. FIELD. It is sent out, I think, for experimental purposes?

Doctor GALLOWAY. Yes; we distribute about 20,000.

Mr. FORBES. I think that could be done, and if there is anything in it, it would be a very good thing.

Mr. CANDLER. We have done it for two or three years or more.

Mr. FORBES. We do not hear as much of it as of the distribution of seeds. I think it would be a very good thing.

Mr. LAMB. I think one private company complained that we were sending it out when they wanted to make it.

Mr. FORBES. Naturally they would.

Mr. CANDLER. How long have you been in the seed business?

Mr. FORBES. Since 1868.

Mr. CANDLER. You have gotten along pretty well all these years?

Mr. FORBES. Yes.

Mr. CANDLER. It is a profitable business, or you would have quit it long ago?

Mr. FORBES. I suppose so.

Mr. CANDLER. The Government has not broke you up as yet?

Mr. FORBES. Not yet, and I do not think they will. I think I can take care of myself, even with competition. We feel this, as a firm, perhaps less than any other firm represented here to-day. I will tell you candidly that I think the firm I represent feels it less than anyone else. I am here, gentlemen, just for the principle of the thing. I do not want to make you believe that it is damaging us as much as it does some. I have no doubt that some, especially commission houses and houses who do a packet trade, feel this keenly. I know it affects them. I have pretty good reason to know it; but it is not likely to put us out of business, and I do not think it will.

Mr. DAVIS. Do Montgomery Ward & Co., or Sears, Roebuck & Co., of Chicago, handle these seeds?

Mr. FORBES. I think they do. They have a seed department and issue a catalogue. We have lots of competition, but we are quite willing to take care of it as long as it is legitimate.

Mr. C. F. Wood. Both firms formerly handled these seeds, but I understand that Montgomery Ward & Co. have abandoned the packet-seed trade as unprofitable, in view of the Congressional free seed distribution.

Mr. SMITH. I would like now to introduce Prof. W. F. Massey, of Philadelphia. He was connected with the agricultural experiment stations for a period of about sixteen years. He conducts a large and influential agricultural journal in Philadelphia, and is familiar with this subject from all standpoints. He does not speak as a seedsman; he does not speak altogether as an editor (one of those editors who have been represented as influenced by advertising), but speaks as a man who knows what he is talking about.



**STATEMENT OF PROF. W. F. MASSEY, OF PHILADELPHIA, PA.,  
EDITOR OF THE PRACTICAL FARMER.**

Professor MASSEY. Mr. Chairman and gentlemen, as Mr. Smith has stated, I have been connected with agricultural college work and with the stations for a great many years as professor of horticulture and vegetable pathology and with a college in South Carolina, and also with the experiment station there for sixteen years. I have come in contact, not only from the institute rostrum, but through my personal correspondence, with the farmers of that State. I believe that during the time I lived in South Carolina I came in contact with four-fifths of the farmers of that State, either personally or through correspondence. I had a correspondence with the farmers there amounting to over 4,000 letters a year, and during all that time I have never met with a North or South Carolina farmer who wanted this gratuitous seed package given to him.

**SOUTHERN FARMERS OPPOSED.**

It has been said that the southern farmers are the class who mainly want these seeds; but they do not want to be pauperized any more than the farmers of other parts of the country. I do not think the southern farmers want anything of the kind.

Mr. CANDLER. They do not want it on the ground that they are paupers. Southerners would object to that right away.

Professor MASSEY. No; I say the tendency of anything of this sort is to pauperize the recipient, and that is the one thing I have always opposed. I have consistently opposed this practice of distributing common seeds throughout the country.

I was a delegate, under commission from the governor of North Carolina, at a recent meeting of the National Congress of Farmers at Rock Island, Ill. One of the members of that congress brought to me a resolution which he proposed to introduce opposing this free seed distribution. I said to him:

I want to amend that a little. We do not want to deprive the agriculturist of this country of this amount of money, but we want it better spent, for the benefit of agriculture in general.

The Secretary, as I understand it, has never had as much money as he would really like to have for foreign explorations.

Am I right, Doctor Galloway?

Doctor GALLOWAY. Yes.

Professor MASSEY.

We want to give him more for that purpose and do as we did with that great introduction of durum wheat and other things which the Department has introduced, which have been of great benefit to the country. We want the money expended in that way.

I added to the resolution the item that we wanted this money to be diverted from this useless and wasteful practice to the real benefit of agriculture by foreign exploration, getting new things that may be of value. Why, this macaroni wheat has grown in a few years to be a \$10,000,000 crop. A thing like that is worth more than twenty years of this common-seed distribution. The reason I want this abolished is not because I am particularly sympathizing with the seedsmen (and it is, as you are perfectly aware, an interference

with their business), but because it is a waste of the public funds which might be devoted to the real benefit and advancement of the agricultural interests. We want that money retained for the use of the Secretary of Agriculture to do for the country what the Department ought to do.

Now I have as a writer for the agricultural press for the last twenty or thirty years consistently opposed this practice. Since I have been editing a farm paper I have been continually trying to bring to the attention of the people the fact that it is one of those things which makes the deficit in our postal arrangements. Not that I believe any deficit is undesirable. I do not care really what the post-office costs, because it is for the benefit of the whole people. I do not think we ought to try to make money out of it, but it is one of those things which makes this great deficit which prevents the country people having the benefits that they might derive from an extension of the free rural delivery and the carrying of packages by carriers, and so on. It is one of those things which prevent the cultivation of their thoughts.

Mr. DAVIS. I am informed that certain public documents in the form of magazines and newspapers are being carried through the mail at a loss to the Government. Would that not be a good way to stop this deficit, to have the publishers pay at least what it costs the Government to carry them?

Professor MASSEY. I would rather discuss that with the Committee on Postal Affairs. [Laughter.]

Mr. DAVIS. I am perfectly willing that you should.

Professor MASSEY. I do not believe the second-class postal arrangement is responsible for anything of the sort.

Mr. DAVIS. I am not asserting that it is. I had heard that state of affairs existed, and as you were solicitous about the deficit I thought I would mention it.

Professor MASSEY. I do not believe that. I think the cheapening of postage to the people in general is one of the greatest educational forces we have.

Mr. DAVIS. I agree with you.

Professor MASSEY. We want to do as much as possible of that, and I say that I do not want the post-office to be a money-making institution. It is just like anything else. Our churches are not money-making institutions. We give our money to them though. We would have a great deficit if we counted all the money we gave to churches, and counted all that we gave to other benevolent institutions, and so on. The post-office is for the benefit of the people. Let us have it, no matter what it costs.

But this seed business—the point I want to make is that it is a waste of public funds that might be better devoted to the real interests of the agriculturists of this country, if used in another way. I believe the Secretary is doing all he can for the benefit of agriculture, but he is compelled to do some things which are not really for the benefit of agriculture, but which, as I said, are really tending to pauperize the people.

The CHAIRMAN. And for the benefit of Congressmen.

Professor MASSEY. And for the benefit of Congressmen; yes [laughter]—used as a little taffy.

Mr. HASKINS. Let me ask you a question right in this connection. From your inquiries that you have made, you say you never have found a farmer in the South who desires the free distribution of seed?

Professor MASSEY. Yes.

Mr. HASKINS. If that is so, how do you account for the fact that the Representatives in Congress from the South are practically solid for the free distribution of seeds?

Professor MASSEY. Well, I suppose it is because they have an idea that they can throw taffy to the farmers, and get some votes. [Laughter].

The CHAIRMAN. And you think they are mistaken in that idea, do you?

Professor MASSEY. That is my idea about it.

Mr. FIELD. But if the farmers did not want the seed they would not appreciate it, and it would not do any good.

Professor MASSEY. No.

Mr. DAVIS. What is that?

Mr. FIELD. I say, if the farmers did not want it and really rejected it, the sending of the seed by the Congressmen would not accomplish the purpose you have mentioned?

Professor MASSEY. No; that is true, and I do not believe they have accomplished much.

Mr. DAVIS. May I interrupt you?

The CHAIRMAN. Mr. Davis desires to put a question.

Mr. DAVIS. In that connection, following up the line of your argument, if the Congressman could throw enough taffy to the farmers he would never be defeated, would he?

Professor MASSEY. I do not agree with that. I say that is the Congressman's idea. I do not say that he is correct in his notion at all. I did not say he was correct. [Laughter.] I say that seemed to be the idea of some Congressmen, but whether he would succeed in that idea or not is a different proposition altogether. I do not think the practice should be discontinued for that reason at all.

I have been opposed to it consistently through all my life as an official in the State agricultural experiment station and as a writer for the public press and the farm press; and I have consistently opposed it on the sole ground that it is a diversion of the money of the public to a practice which is utterly useless and pauperizing, and which money might be used in a way that would be of real benefit to the agriculture of the country. I believe that is about the only point I wanted to make on this subject. I would be glad to answer any questions that any gentleman wishes to ask me.

Mr. SMITH. Professor, if you will pardon me, you have not spoken about the Farmers' National Congress, except to refer to it. I do not believe you finished what you started to say.

#### FARMERS' NATIONAL CONGRESS.

Professor MASSEY. I referred to it, but I do not believe I completed what I wanted to say there. I said that this resolution was shown to me and that I added to it that we were in favor of the diverting of this fund from this practice and to give it to the Secretary of Agriculture for foreign exploration, for aid in farmers' institutes,

and for other purposes which might be of real benefit to agriculture. He agreed to that. I tacked it on. I was a member of the committee on resolutions. When it came before our committee it looked a little awkward in the shape in which it was presented, and I suggested that we have a subcommittee to put it in better shape and have a substitute, which we did.

When that substitute came before the congress I asked for a rising vote. There were 1,000 members there from 30 States; from Texas, from Louisiana, from Arkansas, from Florida, North Carolina, South Carolina, and other Southern States, and other States north and west as far as California. I asked for a rising vote, and every man in that congress stood on his feet, and not one opposed it. They were all farmers—sent there because they were farmers, and coming from 30 States. There was not one solitary vote opposed to it. It was very gratifying to me because I had had a personal interest in the matter all my life. I had been fighting it consistently, and I was very glad the resolution was introduced. I did not introduce the resolution myself, though I would have done so if the other gentleman had not done so, and I was very glad that we got it in the shape we did, because it favors the giving to the Secretary of abundant means for doing what he ought to do and what he has been wanting to do.

Mr. CANDLER. Then you would not favor any reduction in the amount of the total appropriation, would you?

#### NO REDUCTION IN TOTAL APPROPRIATION.

Professor MASSEY. Not a bit in the world. Let the Secretary have all the means he wants to do real good for the farmer. That is what I want. I want him to have all the money he needs. But do not throw it around the country in this way. Why, when they used to send packages to me—I used to get seeds from the Department, as an experiment station officer. I got the new things that were introduced for experimental purposes, and, of course, I took care of them; but when a Congressman sent me these seeds, the first dorky that I would see I would say “Here, Uncle, don’t you want that?” And he would take it. He would take anything you would give him. Otherwise, if I didn’t happen to see a dorky I would feed them to the English sparrows.

Mr. SMITH. I would like to ask Professor Massey one question, because he can speak on this, and the matter was brought up yesterday. Professor, you edit a large agricultural paper. Have you ever had an intimation or a suggestion, or a letter in any shape, manner, or form, from a seedsman threatening to withdraw his advertising if you did not oppose “free seeds?” I do not know that there is any seed advertising in your paper, but presume there is.

Professor MASSEY. Oh, yes; I carry seed advertisements.

Mr. SMITH. Have you ever had any intimation by any seedsmen that if you did not oppose the free seed distribution they would withdraw their advertising from you; or that if you did support the antifree seed movement they would give you more advertising? I will say, for the benefit of the committee, that I have never spoken with Professor Massey on that subject. He may fool me. I do not

W.

Professor MASSEY. I never heard of a seedsman making any such suggestion one way or the other. We advertise with all the seedsmen in the country. Our paper has a larger circulation in the South than any farm paper, I think, published north of the Potomac.

Mr. CANDLER. What is the name of your paper?

Professor MASSEY. The Practical Farmer, of Philadelphia.

Mr. HASKINS. Where is it published?

Professor MASSEY. In Philadelphia. I was editing that paper before I left North Carolina, and finally I gave up my official connection there and took charge of the paper last year. As we get a little older, you know, we want to get things a little easier. I thought perhaps I was working a little too hard down there, and I concluded I would go to the city and live. That was the only reason. But I have never known of a suggestion from any seedsmen in this country that they wanted us to advocate the abolition of the free seed distribution, or any threat to withdraw their patronage. I never heard them make any argument in regard to it.

#### NO PRESSURE ON AGRICULTURAL PRESS.

Mr. BROOKS. There has been no pressure, direct or indirect?

Professor MASSEY. No; neither one way nor the other. I never heard any suggestion from the seedsmen; but I simply wanted to put it before you gentlemen on the broad ground that it was not a proper use of the public funds. We want the funds, and the farmers want the funds. The Department wants the funds. But let us have them used properly.

Mr. HASKINS. I suppose this congress of farmers to which you have alluded was composed of what some of us gentlemen call "kid-glove farmers," who never stood between the plow handles?

#### NO KID-GLOVE FARMER.

Professor MASSEY. You remind me of a man in North Carolina who met me at the farmers' institute as I was going in the courthouse. I have lectured in every county in North Carolina to the farmers. He stopped me and said: "I want to ask you some questions. Did you ever farm any?" "Why," says I, "I would be very foolish to go around the country trying to teach farmers how to farm if I had never farmed any myself." "But," he says, "I mean did you ever plow any yourself?" I said, "Yes, sir; and I have got \$5 in my pocket to bet that I can beat you plowing a field." He said, "I have a piece of ground that I want to get ready for turnips. I would like to have you teach me how to plow." I said, "You get me a good Oliver chilled plow and I will show you how to plow."

He says, "Well, I have a mule and a plow." I said, "That is what I knew." It has been the ruination of the southern people, breaking that red-clay land with a plow and one mule. I said, "You want three mules abreast and an Oliver chilled plow, or some other good plow, to break that land with." In a little while that fellow found out that I knew something that he did not know. He was very much astonished to hear about breaking that land with three mules abreast to a plow. I got him in there and I never saw a man more interested in getting information than that man was. He became satisfied that

we did know something that was of practical use. As I told him, I had plowed with everything that he ever plowed with, even down to a steer.

Mr. DAVIS. Professor, if this question that I am about to ask you seems personal or impertinent you may refuse to answer it and I will take no offense. I would like to ask you if you made a success, financially and otherwise, as a farmer.

Professor MASSEY. Yes, sir.

Mr. DAVIS. I will tell you the reason why I ask the question. I know of a certain gentleman who attempted to farm, and had a reasonably large farm in one of the Northwestern States. He followed the business for four or five years and made a failure of it. To-day he is at the head of the farmers' institute, teaching farmers how to farm.

Professor MASSEY. They make those mistakes in many States. I became a station officer and a college professor, largely, and, in fact, mainly, because I had made a reputation as a farmer.

Mr. DAVIS. I presumed as much, but I thought I would like to ask the question.

Professor MASSEY. I have at home a letter from my old friend, the late Peter Henderson, of New York, written only a little while before his death. I had just been elected on the first faculty that was selected for the North Carolina college. Mr. Henderson wrote: "I am very glad to learn that one college in the country has put a man in a chair who is not a 'kid-glove' man; that is, a man of real practical experience." I have seen so much of this "kid-glove" affair that I have become disgusted with a good many of the colleges because I have had some of their graduates to come to me after having been through a course of horticulture, and they did not know anything at all about the matter. As I say, my position was due to the fact that I had made a reputation. I thank you, gentlemen.

Mr. SMITH. Mr. Chairman, I will now present Mr. J. F. Jackson, editor of the Southern Planter, of Richmond, Va.

**STATEMENT OF MR. J. F. JACKSON, EDITOR OF THE SOUTHERN PLANTER, RICHMOND, VA.**

Mr. JACKSON. Gentlemen, I do not know that I could do better than to say at once that I can say "ditto" pretty much to all that Professor Massey has said. Like Professor Massey, I have been engaged consistently in opposing this free seed distribution for nearly twenty years. As editor of the Southern Planter I have opposed it precisely upon the same grounds Professor Massey has opposed it. I believe the money could be much more wisely used for other purposes.

I have always thought so. I have always thought that it was a very foolish thing to be giving 5-cent packages of seeds to farmers up and down the country, and especially southern farmers, the majority of whom have a supreme contempt for small things. I have always found, in dealing with the southern farmer and in trying to get him to take hold of anything, that he wants to do it on a large scale. They are men who have been accustomed to plantations, and not small farms and gardens, and if you talk about entering upon an

experiment in which he is to use a few acres of land he immediately thinks it is not worth his attention at all. I am sure the majority of them think it is not worth their attention. So in sending about 5-cent packages of seed the consequence is that they do not get sown, and the money is wasted. I have always opposed it on the ground that Professor Massey has stated.

MONEY COULD BE BETTER USED.

I think the money could be very well used by the Department of Agriculture in doing a much greater work than this for the benefit of the farmer, especially the benefit of the farmers of the South. I think there are many ways in which it could be wisely used. One way that occurred to me at the moment, after I had risen to my feet, was the institution of experimental work. You know at present we have one station in a State. Our States are large and varied in character. Look at the State of Virginia, for instance. We have practically five different climates in Virginia, beginning at the seacoast and going to the top of the mountains, 5,000 feet above the level of the sea. Our experiment station is located on the edge of those mountains, 2,000 feet up. The work they do there has no more interest and no more benefit to the farmers on the Atlantic seaboard than if it was done in the clouds.

You can not grow the same crops or do the same kind of work. If this money was given to the Secretary of Agriculture, and he could take it and establish stations and substations in connection with the main station in different sections of our State, it would be of great benefit. On the seacoast they have one class of crops, and if you go into middle Virginia, which rises 200 or 300 feet above the level of the sea, you have there another kind. In another section, the Piedmont section of Virginia, where there is quite another climate, you get another class of crops. The one main station could do the work of southwest Virginia, while the substation could be doing an immense work for the benefit of our people in the eastern, middle, and Piedmont sections of the State, where they get no benefit, or practically no benefit, whatever from the present arrangement.

The money could be wisely used for that purpose. I would like to see it taken further than that. There is no reason, in my judgment, why there should not be an experimental plant in every county in every State. Let there be experimental plants conducted by practical farmers under the supervision of the experiment station officers, and bring these schools right home to the farmers, so that they can look at them without having to go long distances. They do come, but only in limited numbers, to our stations. It was only last July when nearly seven hundred-odd farmers went to southwestern Virginia, some traveling 300, 400, and 500 miles, in order to see the work that was being done, and they paid for it out of their own pockets. They paid their own fares and went to the station. They spent the day there and learned things that they could not have learned in any other way. Why can not the money be used to let them learn these things at home, instead of wasting it in throwing these packages away?

## SOUTHERN FARMERS NO FREE-SEEDERS.

I want to say, further, that I entirely agree with Professor Massey upon the question of the farmers not asking for these things. I do not believe one-third, or one-tenth, ever ask to have any of these seeds. Like Professor Massey, I have had some kind friend or another who sends me these seeds. I put them on my office table. I do not want them. I have said to the farmers many a time, "You can have some of these seeds," and they don't want them.

The CHAIRMAN. Do those seeds influence your vote?

Mr. JACKSON. My dear sir, I have to confess the fact that I have not a vote, and therefore it does not make any difference to me. It would not make any difference to me. I do not want to put it on the ground that it would make any difference with the farmers' vote at all—the giving of those seeds. I do not think Congressmen look at it in that way. They look at it as a matter of courtesy and kindness and thoughtfulness to send a man something. If they could send something much more useful, I have no doubt they would gladly do so. If they were able to say, "I shall not be able to send you in the future any more seeds, but I have arranged that the money be spent so that you can have agricultural experiments conducted at home, and I send you, with my compliments, the privilege of using that; go there and use my name and ask them to give you what information they can," that would be a thousand times more valuable than for them to have all the common seeds you can send to them.

I do not think it will do any good, either, in the way of their making experiments with these seeds. They certainly do not report the results of any experiments that they make with them. I believe the Secretary of Agriculture says that they do not any of them report, scarcely. I do not think it ever made any difference in the votes that the Congressmen who distribute most of the seeds in those sections get. I believe it is practically a waste of labor, time, and money. As Professor Massey says, we want money. For God's sake, do not stop that. Let the Department have it. Do not stop the appropriations. Let us have the benefit of all the money we can get, but do not waste the money that could be wisely used in developing the greatest industry of this country.

## PRESS NOT INFLUENCED.

Mr. HASKINS. Mr. Smith, will you ask him the same question you asked before about advertising?

Mr. SMITH. Yes. Will you answer that question?

Mr. JACKSON. Well, I have been the part owner and main owner of the Southern Planter for twenty years. I am the editor and publisher of the paper, and such a thing was never mentioned to me. I never heard of such a thing—of any influence being endeavored to be used by any seedsman. I suppose we carry as much seedsman advertising as any paper published and circulated in the South, and I never heard of such a thing; and I want to say, further, that if any seedsman had ever made such a suggestion to me his advertisement would never have appeared in my journal as long as I conducted it owned it.



Mr. LAMB. As I well know, you represent a valuable paper.

Mr. JACKSON. I thank you.

Mr. LAMB. I have been reading it for thirty years.

Mr. JACKSON. I know it and I appreciate it.

Mr. LAMB. As you well know, I represent in part Richmond city, that is about one-half, and eight counties of the State.

Mr. JACKSON. Yes.

Mr. LAMB. Your paper goes to the farmers of those eight counties?

Mr. JACKSON. Yes, sir.

Mr. LAMB. Of course we all know you are opposed to this distribution.

Mr. JACKSON. Oh, yes.

Mr. LAMB. How comes it, then, that when I spoke at all those counties during the last canvass and spoke to the citizens before me—and they represented the farmers of all classes, kid glove (if there is any of them left there) and others—and asked them to instruct me on this point, that if they wanted the distribution of these seeds discontinued to say so, invariably they said: "What matters a small appropriation of \$132,000 if it helps some of our poor farmers? We, as larger farmers, do not regard it as interfering with anybody. We have gotten some rare seeds, and we have gotten our improved lettuce, watermelons, and cabbage, that have been helpful." How happens it, if this thing is wrong, and these farmers deal in large matters and not in small, as you say, that they do not make some protest?

Mr. JACKSON. I can only understand that in this way—that the majority of them do not for one moment consider how best the money could be spent. They say it is a small matter, and they say some poor farmer or some poor colored man can get a package of seeds and it may do him some good, and they do not take any interest. They say, so far as that is concerned, that the amount is so small that it can not affect them individually as taxpayers.

Mr. LAMB. That is for the country. In the city of Richmond there are 100,000 people, and 10,000 laboring men working in the factories there. There are 600 or 700 factories, you know, in Richmond.

Mr. JACKSON. I know.

Mr. LAMB. How is it that I can show you letter after letter asking me to send them these seeds to plant in their small gardens?

Mr. JACKSON. I have no doubt you can. I never knew of anything being given away where you could not find somebody willing to take it. There is always somebody ready to take it. But as an answer I might say that you know, Mr. Lamb, I have been consistently opposing this, and I have never heard a single objection from any of my numerous subscribers. I have thousands of subscribers and, I suppose, 100,000 readers every month. My attitude has never been objected to. I think that many people take it in the way that has been spoken of here to-day—as a little courtesy and compliment. They think it may do some poor fellow some good and it does not do the larger man any harm; but I think the money can be more wisely expended.

I think if I had the opportunity of talking to them in a public meeting, and of showing them, I could turn the meeting right around, and they would say, "Take that money and expend it in the way you suggest, and we think it will do more good than we get out of these seeds." I think you agree with me that if we could bring that thing

down as we ought to and place an experimental station in Charles City County and Goochland County, in which we could show the men how to grow crops more extensively, as they have done in Appomattox, you could make twice as much out of the tobacco crop in Virginia. If they used scientific methods instead of the old methods, they would get tobacco a thousand times better than they would get otherwise.

Mr. LAMB. You are an enthusiast along some lines. If you were a member of the committee and had to meet the objections of the chairman when you asked for an appropriation, your enthusiasm would have a wet blanket.

The CHAIRMAN. What is that?

Mr. LAMB. I say if he was a member of the committee here and had to ask for these appropriations, with your earnest protest against it, his enthusiasm would have a wet blanket.

Mr. CANDLER. The total amount for the purchase of seed of this character sent out for Congressional free distribution, the cost of putting them up, putting labels on them, and sending them out, is \$132,000.

Mr. JACKSON. Yes.

Mr. CANDLER. How far would that go toward establishing experimental farms in every county in the State?

Mr. JACKSON. It would not go very far, but it would make a beginning. Fifteen thousand dollars is all that has been appropriated by the National Government until these last few years for the starting of the experimental station in a State.

Mr. CANDLER. It would not establish experimental farms in every county in the State of Virginia?

Mr. JACKSON. Fifteen thousand dollars is all that has been expended in starting the experimental station for a State.

Mr. CANDLER. That has been doubled in the bill already passed.

Mr. JACKSON. That is what has been done, I say.

Mr. CANDLER. We were discussing the point about establishing experimental farms throughout the State for \$132,000. It would be impracticable.

Mr. JACKSON. It is like establishing an experimental station first in a State. You start it with a small sum, and when you get more than double the amount of work you increase the money. One hundred and thirty-two thousand dollars would go a long way. Such experimental farms could be started on from \$200 a year upward.

Mr. LAMB. You would not have us discontinue this appropriation for flower seed, would you?

Mr. JACKSON. I think the whole thing ought to go by the board, and a better use made of it. I am a greater lover of flowers, I think, than you can be. I have loved flowers all my life, and I am, perhaps, one of the very few who in the city have devoted some time and spent money in putting a greenhouse up and growing flowers. My neighbors come and say to me "Do you sell flowers?" I say "No, I grow them for my own pleasure." I never sold them in my life, and they think it a very foolish expenditure of money. They are willing to buy some flowers now and then, but not to grow them.

Mr. BROOKS. Your objection goes to the distribution of common seeds. Would you object to it if the distribution were confined to rare or new varieties?

Mr. JACKSON. No; I think it a wise expenditure of money. The introduction of that durum wheat has been of infinite value. The Secretary of Agriculture could find hundreds of things that could be brought here from different sections of the world, and in a year's time we could make millions of money, where we are not now getting anything at all.

Mr. SMITH. I would now like to introduce Mr. E. J. Reichelm, of Bayonne, N. J., who appears, not as a seedsman, but as an individual taxpayer.

**STATEMENT OF MR. E. J. REICHELM, OF BAYONNE, N. J.**

Mr. REICHELM. Mr. Chairman and gentlemen, I am not in the least interested in the seed business, and the only reason I am here is because I am interested, merely socially, in my friend, Mr. Forbes, of the firm of Peter Henderson & Co.

We met socially, and this matter came up of the free distribution of seeds, and he asked my opinion of it as a mechanic and a manufacturer, and I gave it, and he induced me to come here. Now, my opinion is simply this: The welfare of all of us, whether we are agriculturists, or mechanics, or manufacturers, whatever we are, depends upon the general welfare of the country, and no man has a right to get anything from the Government except his share of the general welfare which is created under its auspices. I do not believe in giving any man any advantage over any other man. I do not believe, sir, that the farmers are entitled to any gratuity. They are, however, entitled to be encouraged as we are by the General Government through the establishment of institutions that are educational. We have such an institution in behalf of mechanics in the Bureau of Standards, recently established—a magnificent thing. It does that which we could not do ourselves. It would cost too much to make certain experiments.

It would cost the individual manufacturer too much to go into it, but by bringing this matter to the attention of this Bureau of Standards the whole Government and a certain appropriation is behind it to carry that experiment to a success and to teach us new things. In the same way, I believe the farmers should be assisted. They are the backbone of our prosperity, upon whom every other industry rests, and I certainly do not come here to oppose anything that would be for their benefit; but I do oppose the profligate use of the public funds for any class, and I do believe, whether it is \$62,000 or \$132,000 or 15 cents, this Congress has no right to appropriate money for the purpose of distributing these seeds among a class of people. That is my standpoint. I wish I could influence you to increase the appropriation and apply it as the last two speakers have proposed.

Mr. SMITH. I now wish to introduce Mr. Walter P. Stokes, of Philadelphia, Pa.

**STATEMENT OF MR. WALTER P. STOKES, OF PHILADELPHIA, PA.**

Mr. STOKES. Mr. Chairman and gentlemen, the two gentlemen who have spoken for the press have largely taken away my thunder, but there is one point that I would like to call to your attention. There seems to be, if I can interpret the atmosphere of this committee, a

spirit of antagonism toward the seedsmen. I would like to disabuse your minds a little on that point. We are a part of this great agricultural question.

We are working along parallel lines with the Department of Agriculture. Mr. Burpee, whom I met yesterday, has probably the largest trial experimental grounds ever conducted in this country. It costs him thousands and thousands of dollars annually. I have a smaller one, which is of very great usefulness to me and to the farmers in my neighborhood. Those of you who are not expert gradeners, who are not in this direct line, have little appreciation of the value that it is to the planters to come along, for instance, and see a long series here of lettuce varieties, say, 25 or 30 varieties, all planted on the same day. He can see what the varieties are that particularly appeal to him. All of these things along educational lines are of vital interest and are vitally attached to the agricultural interests of this country.

It is exactly along parallel lines with the work that Professor Galloway, under the Secretary of Agriculture, is conducting. Professor Galloway's head is chock full of things that are of vital interest to this country, and I plead with you gentlemen that you take a larger view of this matter and let him work them out. Give him the money to do it. Is the man who accepts the gratuity the man who is going to help agriculture out in this country? I want to ask Mr. Davis, of Minnesota, if the man who will accept—let alone ask for—a gratuity is the man who is going to help agriculture in your State?

MR. DAVIS. I do not consider it a gratuity. Therefore your premise is wrong; and I want it understood that I am not antagonistic to the seedsmen, either. My people—and I have perhaps 200 or 300 relatives—are farmers. I am told they spoiled a good farmer to make a poor lawyer and a poor legislator out of me. I am not antagonistic to the seedsmen. I have been connected with farming all my life, and I am not antagonistic to the farmer. Your premise, so far as my constituency is concerned, is all wrong.

MR. HASKINS. Put the question to Mr. Davis leaving out the word gratuity—whether a man who received a package of those seeds is helping or aiding the interests of agriculture?

MR. STOKES. That is what I mean.

MR. DAVIS. They claim to me that they are. There are about 80,000,000 people in the United States, and the gratuities farmed out at the present time throughout the United States to manufacturers, seedsmen, and every other class in the United States, from the Navy down, are so monumental as compared to what seems to me so insignificant a matter that men representing the interests you do ought not to oppose it. That is my idea.

MR. STOKES. I beg to take issue with you.

MR. DAVIS. Certainly; we take issue right there.

#### AGRICULTURAL DEPARTMENT SHOULD HAVE MONEY.

MR. STOKES. The point I make is this, that that \$132,000 expended in that distribution, if that money had been given to the Secretary to use along the lines of scientific work that he is conducting, infinitely more beneficial results would obtain than could possibly obtain from

that simple little garden that you give, and which they can get from any corner grocery store in the land.

I had not expected to go into this opposition as much as I have, but the point I want to make is this: That all of that appropriation—and we want you to make it just as large as you will—can be used to the very best advantage by the Department along the larger lines which will benefit the greater number.

There is just a slight instance of the introduction of a new thing, and it is difficult for you, perhaps, to appreciate what it means oftentimes, but you can realize it in that introduction of the durum wheat. The same thing happened in the introduction of the new tomato in southern New Jersey a few years since. That whole section has profited by the introduction of that one single new thing, to the extent of hundreds of thousands of dollars. The farmers have paid off their mortgages. They are getting \$1.25 and \$1.75 a basket for their tomatoes, whereas they used to get from 25 to 30 cents a basket, and it means just the difference between success and failure. So in pleading for these better varieties we are pleading not for the assistance of one or two or three or more little bits of gardens, but we are appealing for the larger interest of the larger number.

I am sure this money will do infinitely more good if used in other ways, and furthermore we want to free the Department of Agriculture from the necessity of the labor and the attention to details of all this thing, and let their minds be free from it. Let them be able to give their entire attention to this scientific work which is so valuable, and which they are so thoroughly equipped to carry on.

Mr. DAVIS. Will you permit an interruption?

Mr. STOKES. Yes.

Mr. DAVIS. I distributed last year, I think, and the year before, 30,000 to 35,000 Farmers' Bulletins among the farmers of my district.

Mr. STOKES. That is magnificent work.

Mr. DAVIS. And I gave them all they desired. Of course my quota was not equal to it, but I succeeded in purchasing them where it was desired. Still, there are many, many farmers in my country who are foreigners, of all nationalities, and who can not read the English language. Hence, while I am an advocate of sending these Farmers' Bulletins to them and believe it is most beneficial, still there are a large number of people in the West and Northwest who can not even read those bulletins.

Mr. HASKINS. Their children can read the bulletins for them.

Mr. DAVIS. Probably that is true, or will be, and when they can do it I will let down, probably, on that question. They have not lived in the East. They belong in the West, where the durum wheat is raised. They can raise it. I live in the country bordering North Dakota, where nearly all of the durum wheat in the United States is raised, and it is not limited to \$10,000,000 worth this year, I think. It is nearly double that.

Professor MASSEY. Will you permit me to say that they might issue the bulletin in their own language. I once wrote a bulletin in French for some Frenchmen.

Mr. DAVIS. I am in favor of that, but still I desire to encourage the use of English as much as possible. I want to advance the farmers' interest as fast or faster than anybody.

## NO SEED TRUST.

Mr. COLE. The statement was made on the floor of the House last year that some of the Members were in favor of the free distribution of seeds because of the trust existing between these seed firms of the United States. Is there any trust?

Mr. STOKES. There is absolutely no trust whatever. It was attempted at one time, years ago, and it ended disastrously. It was absolutely impossible to have a trust in seeds.

Mr. LAMB. I have never heard of it.

Mr. STOKES. There is no foundation for it in fact whatever.

Mr. CANDLER. Is there not concerted action among those representing the opposition to the free seed distribution?

Mr. STOKES. Yes.

Mr. CANDLER. Have they organized headquarters here in Washington to oppose it?

Mr. STOKES. Mr. Smith can talk to you about that.

Mr. CANDLER. Do you not know?

Mr. STOKES. Yes, sir.

Mr. CANDLER. You are one of the seedsmen?

Mr. STOKES. Gentlemen, I claim that as seedsmen we are bound to do it. We are bound to place our case before the people.

Mr. CANDLER. I want to know the fact about it.

Mr. STOKES. If we have a proper sense of the dignity of our business, we are bound to do what we can to present to the people in general what we believe to be the facts.

Mr. CANDLER. I do not oppose any man doing what he deems legitimate and right, or any man doing anything that is legitimate and right to protect his own interests and sustain his own business; but I asked questions here yesterday along this line, and I want to know whether that is the fact or not, because when this matter was under consideration before the second vote was taken in committee I heard, and it was stated in the Washington Post, that there was a hurried meeting of seedsmen from all parts of the country at the New Willard Hotel, and that they determined there to use such means as they could, and to put up such funds as were necessary to prevent the continuance of this seed distribution; and this paper stated, according to my recollection of it, that they expected to use the press to create public sentiment in that way. I heard that they raised \$3,000 there then.

Mr. STOKES. No.

Mr. CANDLER. And that they have raised a fund since of \$20,000.

Mr. STOKES. No, sir; that is all in the air.

The CHAIRMAN. If they sent any money to Members, I did not get any. [Laughter.]

Mr. STOKES. That is all in the air.

Mr. CANDLER. But you got concerted action?

Mr. STOKES. Yes; or we would not have been here to-day together.

Mr. CANDLER. You stated a moment ago that Mr. Smith is in charge of your headquarters here at Washington to bring about such sentiment as he can in opposition to this appropriation.

Mr. STOKES. Yes.

Mr. CANDLER. And it takes money to do that?

Mr. STOKES. It takes some money to do that. It is perfectly proper and legitimate. We feel that a wrong is being done to us, and if we can do anything in a fair way to correct that wrong we are going to do it.

Mr. CANDLER. You stated a while ago that you would like to see this money given to the Department of Agriculture to make these experiments with reference to the introduction of foreign and rare seed, and so forth, and so on. Do you agree with the gentleman—I do not remember who it was now—who stated a while ago that as soon as these seed experiments were made and the benefits were derived from them and they were given to the people, and the seed should become to a certain extent common seed throughout the country, then you would oppose the further distribution of that seed by the Department of Agriculture?

Mr. STOKES. Yes.

Mr. CANDLER. And would favor the distribution of it by seedsmen?

Mr. STOKES. Yes; I think that would be eminently proper.

Mr. CANDLER. In other words, then, you want these experiments made by the Department of Agriculture at the expense of the public for the benefit of the seedsmen of the United States, and not for the benefit of the people?

Mr. STOKES. No, sir; it is for the benefit of the people. There is no such thing as the benefit of the seedsmen.

The CHAIRMAN. I suppose the attempt to exterminate the cotton boll weevil is along the same line. I suppose you object to the Government paying for that, do you not?

Mr. CANDLER. It affects the country, because cotton is the great leveler between this and all the countries of the world. Last year the exportation of the cotton crop was a million dollars a day every day in the year. The exportation was, in fact, \$401,000,000, and but for that we would have had the balance of trade against us.

#### SOMETHING BETTER.

Mr. STOKES. I would like to ask this. I realize the fact that we are asking to take something away from you that you have had, and you want something in its place; and we want to give you something in its place that is better. Would you not rather have the Department, after exhaustive tests in long staple cotton, present to you some seeds of that long staple cotton to distribute among your constituents, rather than to give them a little garden seed?

Mr. CANDLER. They are doing that. We get some cotton seed for distribution in our section. They give us 80 packages. I have nine counties in which to distribute that, and I distribute it in different sections of each county, in order that I may give it to the people as far as possible throughout each county.

Mr. WOOD. Will you allow me to answer the question that has been asked? You asked if the Department of Agriculture introduced this new variety of seeds, whether the seedsmen should then take it and sell it and the seedsmen get the benefit of the Department's introduction of the seed. Is that the question?

Mr. CANDLER. Whether he would then oppose the distribution of the seed by the Department and insist that it be distributed

through the seedsmen of the country. This gentleman stated that he would favor it, and another gentleman stated that also.

#### FARMERS SELL SEED.

Mr. WOOD. I will answer that. The Department of Agriculture introduced this durum wheat. One of the seedsmen, a gentleman who sells durum wheat, told me that when a farmer raises a crop of durum wheat he sells it as wheat and not as seed. Can you control the crop of a farmer? If W. Atlee Burpee spends \$2,000 or \$5,000 and introduces a bean, does Mr. W. Atlee Burpee get protection on that bean? If Mr. Stokes buys that bean from Mr. Burpee and he raises a crop of it, what is to prevent Mr. Stokes from selling it next year as seed?

Mr. CANDLER. Nothing.

Mr. WOOD. There is no way to prevent it. There is no patent and no protection whatever. A seedsman may spend thousands and thousands of dollars for the introduction of new varieties, and there is absolutely no protection to that seedsman that he shall have the sale of that product.

Mr. CANDLER. Then the conclusion from your argument is that the farmers would plant the seeds and reproduce them and sell them themselves, and the seedsmen would go out of business?

Mr. WOOD. They do it all the time. If you sell a new and improved variety of seed in a neighborhood where the farmer pays, say, \$3 a bushel, and he finds that he has a crop that is 10 or 15 per cent better than that of anybody else, he sells his seed to everybody in that neighborhood. There is no protection to the seedsmen or to the Department of Agriculture in the introduction of new varieties.

Mr. SMITH. I now wish to introduce Mr. F. W. Bolgiano, of Washington. And at this point I would like to say that I have some matters in connection with this subject which I would like to present to the committee. I am at your disposal at any time. I think I could finish what I have to say in twenty minutes, if you could hear me after Mr. Bolgiano has concluded.

The CHAIRMAN. We will hear Mr. Bolgiano, and at the conclusion of his remarks the committee will decide whether they will hear you now or at some other time.

#### STATEMENT OF MR. F. W. BOLGIANO, OF WASHINGTON, D. C.

Mr. BOLGIANO. Mr. Chairman and gentlemen, this free distribution of seed has been gone over so thoroughly from the standpoint of the seedsmen that I hardly know at what point I could make any further suggestions; but as I came into this room yesterday my eyes wandered around and I noticed these beautiful pictures of very fancy and prize stock. My thought immediately turned to the free distribution of the common varieties of seeds. If the person who introduced this fine collection of stock had sent around the old Texas long-horned steer these walls would not at the present time have pictures of this improved stock on them.

The Department of Agriculture, as I know—and I am personally acquainted with a number of the gentlemen in the Department of Agriculture—have striven to introduce, to the best of their ability,



the new varieties of seeds. They want to do it. They are making experiments to the utmost extent, and to the last dollar, for the benefit of the farmer. It was asked yesterday, What does the farmer get out of the Government? Why, he gets protection, like the manufacturer. He gets a great many things that manufacturers do not get; but where a man can make one blade of grass grow 1 inch higher, or one blade of wheat grow one kernel more of wheat, he has done for this country more than the free distribution of seed of a common variety will ever do. There are men making experiments in the Agricultural Department, and I know it, who are trying to produce a longer spear of grass.

Here, outside of Washington, I can take you, within a few minutes' ride, to a farm where a few years ago the maximum amount of stock that could be kept safely on that farm was 25 head. It was a farm of just about 100 acres. Through the experiments of the Agricultural Department, and through the knowledge derived from the Agricultural Department, to-day that man has 100 head of stock on that 100-acre farm. You say, "Oh, well, that man is an intelligent man. That man is a man who understands his business."

Is not that man an education to every man in his neighborhood? I do not care whether a man can read or not, he can see that that man is introducing something on his ground that is better than his own, and he will immediately begin experiments.

Mr. COCKS. Is it anything unusual to keep 25 head of stock on a 100-acre farm?

Mr. BOLGIANO. It is considered that about 4 acres to the head of stock, I believe, is the average.

Mr. COCKS. We would not think it was in our country.

Mr. BOLGIANO. Do you keep 100 head of stock on a 100-acre farm?

Mr. COCKS. We keep about 40 head on a 100-acre farm.

Mr. BOLGIANO. If you show a man how to keep over 100 per cent more stock on his farm, I think that would be doing something. Around here 25 is considered a fair average for a 100-acre farm. I will state that I am in the seed business, and I have been connected with farming. I am a farmer, and I rent a farm in Frederick County, Md., and I am interested in farming. I make experiments to the best of my ability and to the extent of my pocket, on this land which I rent, or work, and it is very interesting to me to know of the experiments that are going on in the Agricultural Department. The seedsmen of this country do not want to throttle the Department of Agriculture. They want them to advance; and as to the seedsmen taking up a new and valuable variety after it has been introduced, the seedsmen may take it up, and there is no question that they would take it up.

But after the Agricultural Department has introduced it, and has introduced it at a prohibitory price to the average farmer, then the seedsmen, because of the natural production of seeds, get it down to a price where every single farmer can take hold of it and grow it. If you would control it, you would control only \$135,000 worth of the new kind of seed and hold it all within the Agricultural Department. If you would debar the seedsmen from handling it, what good would it do to the great farming community? The seedsmen would take it and sell it at low prices. I think I have said all I care to.

The CHAIRMAN. Gentlemen, it is a quarter after 12 o'clock. It is for you to decide whether you want to go on any further at present. How much time do you want, Mr. Smith?

Mr. SMITH. Mr. Wadsworth, I think possibly I could say all I want to in twenty minutes or half an hour. I expect there will be a number of questions asked.

The CHAIRMAN. Doctor Galloway desires to be heard.

Mr. SMITH. I can appear at any time. The matter has been left to me to collect and compile the data that we have presented, coming from all parts of the United States, and when I present that I imagine you will, like the Senate committee, want to ask questions probably as to how this material was collected and what it means.

The CHAIRMAN. I suggest that the committee listen to Mr. Smith, and that it then have a special meeting at a later day to hear Doctor Galloway on this subject. Is there any objection to that?

The Chair hears no objection.

Mr. DAVIS. I can not stay that long, but that is immaterial.

The CHAIRMAN. Cover new ground as much as possible, Mr. Smith.

Mr. COCKS. It seems to me, in view of the fact that Doctor Galloway has been here two days we ought to hear him anyway the next time.

The CHAIRMAN. We will have a special meeting for the purpose of hearing Doctor Galloway.

**STATEMENT OF MR. WILLIAM WOLFF SMITH, OF WASHINGTON,  
D. C.**

Mr. SMITH. Mr. Chairman and gentlemen, I do not pretend to be a seedsman. I am a newspaper man. I may say that I have been in and around the Capitol for approximately ten years. I served on the floor of the House for five years with the New York Sun Press Association. I have had the pleasure of knowing personally most of you gentlemen who were here at that time. As a newspaper correspondent, I think in common with practically all the correspondents, and in common with the entire press of the country, I always regarded the distribution of these seeds as a waste of money; not that they are all wasted; not that it is a pure waste of money, but that a large part of these seeds are wasted. I wrote articles on it at that time. Nearly every year I wrote something on that line.

About five years ago, or possibly less than that—Doctor Galloway can tell; we will say four years ago—they had a great deal of trouble in the Department of Agriculture over these free seeds. They had a great deal of trouble with the contractors. They were sending out worm-eaten seeds and worthless seeds—seeds, I believe, that it was at that time claimed had been cleaned. They were two or three years old, it was said, and had been polished by machinery to resemble fresh seed,

I went into the whole proposition very thoroughly at that time and wrote several articles on the subject, which attracted considerable attention, especially among the seed trade. I had no financial interest in it at all at that time, but treated it as a matter of news. Last spring, I think in March, or possibly before that, your honorable

committee acted on this subject and omitted the item for the Congressional free seed distribution.

I received a letter two or three days afterwards from Mr. Burnett Landreth, of Philadelphia, stating that a number of seedsmen would be down here, and, in view of the interest I had previously taken in this matter, he would like to have me come over to meet these gentlemen, which I did. I had never met any of them before, and I did not know any of them at all. I went to the Willard Hotel. This is the famous meeting, the great "lobby" of the "spike-tailed agriculturists" that you hear so much about, in which they are charged with having bought up all of the press in the United States. They asked me my opinion of the situation, and I said, "Gentlemen, I have been writing on this subject, as every other correspondent has for years and years," and they said, "Now, the House committee has acted on this. How do you think we can go about it to get our side of the case before the public and before Congress?" I said, "I am a newspaper man. To my mind there is no other way that is as good or as successful, if you have a good case, as to appeal to the press of the United States, and to the public through the press." They asked me if I would take up the matter and take it in charge and do what I could to present the matter to the press, the public, and to Congress. I told them I would be glad to accept the engagement, and that I thoroughly believed in their proposition. And at this point I may say that while I sometimes write articles on other things before Congress—and I may say that my labors are sometimes sought by Members of Congress who think they have meritorious measures to present to the press, and to the public through the press—I refuse to accept any engagement whatever, at any price, where I can not conscientiously support such measure, or oppose it, as my clients may desire. In other words, where my client's view of the case does not coincide with my own I decline the engagement, no matter how lucrative. I may further say, in this connection, that there are something like 300 daily papers in this country which depend on me and on my little bureau for all their special dispatches from Washington. I can not betray the confidences of those papers or those editors. I could not afford to if I so wished, for if I did I would soon have no business. That is the way I came to be engaged by these seedsmen.

This distribution had been opposed by the press for fifteen or twenty years, or certainly for twelve years, to my positive knowledge, before these gentlemen ever met.

#### NO PRESSURE ON THE PRESS.

I may say that they paid me the compliment of asking me to continue the campaign through the past summer. Since this thing has come up no seedsmen has ever, to my knowledge, intimated to any paper whatever that he would increase his advertising if it supported us or decrease it if he did not. I can state that without qualification; and I can further state that when that matter was brought up to me I made the special point that there should be no pressure brought to bear on the papers in any way except by appealing to their sense of justice. That is the spirit in which we come

before this committee—not that we are going to get your scalps if you do not obey, not that the seed trade is poor, not that you are bankrupting these seedsmen, but that it is an injustice whether it be 15 cents or fifteen hundred thousand dollars.

Mr. Davis, I think, a few moments ago made the point that this is a small matter. It is a small matter to the trade in general. But if a man puts his hand in my pocket and takes out money it does not make any difference if he takes 15 cents or \$15,000—

Mr. COCKS. It makes a big difference to me.

Mr. SMITH. It does not make any difference what he takes, it is larceny, pure and simple. It does not make any difference about the amount. If this is wrong in principle, it is wrong no matter how much is involved.

These gentlemen employed me, and I have done all I could. I have written letters to the press of the country—to practically every daily paper in the United States, I think, as far as I could cover them. If you would like to have me do so, I will read a letter that I sent to them all. I have all this data, and I want it understood that you can not ask me any question that will embarrass me in this connection. I present myself for examination, if you want any further light on any of these details.

I wrote to the editors of these papers and asked them if they were not opposed to the present method of distributing free seeds—not of free seeds, per se—but the indiscriminate distribution of pumpkin, squash, watermelon, muskmelon, tomato, and cantaloupe seed, which have been on the market anywhere from ten to forty years. I have letters which I will, with your permission, present as a part of my remarks, from 500 newspapers, whose editors thought enough of this matter to sit down and write personal letters, saying: “We have been fighting this for years.” “Go ahead.” “We are all with you.” “Bully for you.” “Go on.” “See if we can not get this farce done away with.” They do not write to me because I have advertising. I never handled a line of advertising in my life. They do not know me as an advertising man at all.

Of course some of the editors of newspapers know me personally and some know me as a correspondent, but many of these letters come from editors whose names I never even heard of. I have no personal acquaintance or relations with many of them. In all this correspondence that I have had with newspapers I have never found but two editors who said they were in favor of free seeds. One of them said that his Member of Congress sends him 200 or 300 packages of these seeds every year, and he does not want to oppose it because if he did he would lose the seed. Undoubtedly he has a little farm, or perhaps a large farm, and he seeds the farm at the Government's expense, or, perhaps, he gives them to his subscribers. Of course he does not want it done away with.

There is a newspaper correspondent in town here who said to me, “I sympathize with you. I think your fight is all right, but I can not oppose this. A friend of mine is a clerk of a committee, and he gives me a bushel of seeds every year, and I send them to my father up in New York, and he don't have to buy seeds.”

I have two letters from agricultural papers, and they say: “My dear sir, we think you are all right, but this is a seedsmen's fight. Why should we take up the seedsmen's fight when they do not adver-

tise with us as extensively as they should? You get us advertising and we will support your proposition." I wrote back and said: "Gentlemen, we are not doing business that way." I have not anything to do with seed advertising. I do not know who does have.

The seedsmen do not generally advertise with the press, certainly not with the daily press. Their methods of advertising are different. The Peter Henderson Company, W. Atlee Burpee, and all the large seed dealers advertise mainly in catalogues. They send out handsomely illustrated catalogues several times a year showing what they expect these seeds they are selling will produce, and I venture to say that in the case of these gentlemen whose names I have mentioned the seeds do the work. That is the way they advertise their seeds. I wrote to the two editors, and I said: "We are not conducting our campaign that way. If you want to come into this from the standpoint of right and justice, we will be very glad to have you come along. If you do not, stay out." One of them came in and the other stayed out. There are others here [exhibiting letters and editorial clippings], and I will be very glad to leave these with the committee, if anybody wants to see them—about 500 to 1,000 editorials from as many different newspapers, agricultural papers, daily papers, church papers, some cartoons, and all that.

At this point, Mr. Chairman, I beg leave to insert some extracts from a few of the letters received from editors of agricultural and daily newspapers. Having been written with this end in view, I think they should be presented to your committee. The originals will accompany the exhibits:

EXTRACTS FROM LETTERS OF AGRICULTURAL EDITORS.

The New Jersey Farmer, Westfield, N. J.: The Farmer is opposed to the free-seed distribution.

Southern Tobacco Journal, Winston-Salem, N. C.: You may put me down as being opposed to the free distribution of garden seed. It is a gross humbug, to say the least.

The Southern Farm Gazette, Starkville, Miss.: We regard the free distribution of seeds as one of the worst fakes that was ever perpetrated on the American people.

The Rural Californian, Los Angeles, Cal.: This thing is an old chestnut. According to our way of thinking it is wholly useless.

The Southern Ruralist, Atlanta, Ga.: We appreciate the work you are doing to have the free-seed distribution done away with and will be glad to cooperate with you.

The Prairie Farmer, Chicago, Ill.: We have referred to this matter in various issues in the Prairie Farmer, always urging that the same be discontinued.

Ranch and Range, Denver, Colo.: From principle we are making a protest against this wholesale slaughter of the people's money.

Daily National Live Stock Reporter, Chicago, Ill.: We are heartily in favor of the attitude you assume with reference to this subject.

Town and Country Journal, San Jose, Cal.: We quite agree with all you say.

The Twentieth Century Farmer, Omaha, Nebr.: We hope that this appropriation will be abolished, as we believe this money can be put to much better use.

Rural Californian, Los Angeles, Cal.: We will help you in fighting the free distribution.

Poultry Husbandry, Waterville, N. Y.: We quite agree with you in the matter of free seed distribution.

The Tri-State Farm Journal, Crisfield, Mo.: We will give our subscribers a straight talk on the matter.

Western Breeders' Journal, Clay Center, Kans.: This practice has our unhesitating condemnation. The original idea was all right, and if carried out would have meant great things for the American farmer, but the plan as it is

now perverted is the rankest kind of foolishness and useless expenditure of the people's money and borders close to actual graft.

Texas Stockman and Farmer, San Antonio, Tex.: We have already gotten after the Government seed fake, editorially and otherwise, and will keep the "lick" up.

The Southern Home, Louisville, Ky.: The Southern Home has been opposed to the indiscriminate free distribution of seeds.

The Southern Reporter, Charleston, S. C.: The Southern Reporter may be put on record for the purchase and distribution of rare and valuable seeds, rather than common garden seeds.

Farm and Ranch, Dallas, Tex.: The Farm and Ranch has been fighting this old fraud for many years.

The Ranch, Seattle, Wash.: We are in full accord with the ideas expressed in your letter.

Progressive Country Life, Washington, D. C.: We heartily indorse the action against free seeds.

Successful Farming, Des Moines, Iowa: We are with you in the fight against the Congressional free seed distribution.

Inland Poultry Journal, Indianapolis, Ind.: The Inland Poultry Journal is very much in favor of eliminating all this tommyrot.

Wallace's Farmer, Des Moines, Iowa: I am entirely in sympathy with you and your fight against this free seed distribution.

Missouri Agricultural College Farmer, Columbia, Mo.: We are with you in this fight against the free seed distribution.

The American Cultivator, Boston, Mass.: We have always taken the standpoint that the free seed business is a kind of graft, and ought to be opposed on that principle, if for no other.

The Garden Magazine, New York, N. Y.: We are unqualifiedly opposed to the general distribution of seeds.

The Connecticut Farmer, New Haven, Conn.: The consensus of opinion among those of our subscribers we have been able to reach is in favor distinctly of the abolishment of this practice.

Farm and Fireside, Springfield, Ohio: Farm and Fireside has steadfastly and consistently opposed free seed distribution.

American Farmer, Indianapolis, Ind.: We have been fighting this proposition for years.

The Farm Home, Springfield, Ill.: We will be pleased to cooperate in the antifree seed campaign.

The California Fruit Grower, San Francisco, Cal.: We have for a number of years back been howling and editorializing in opposition to this matter.

The Northwestern Agriculturist, Minneapolis, Minn.: We have long been on record ourselves in opposition to this petty, contemptible graft.

Farm and Home, North Yakima, Wash.: For many years we have been exposing the frauds of the free seed deal.

Farm, Field and Fireside, Chicago, Ill.: We have frequently taken up the abuse of the free seed distribution, and have followed the subject closely.

The Fruit Grower, St. Joseph, Mo.: The Fruit Grower has published a number of articles denouncing the whole business.

The Farm Magazine, Omaha, Nebr.: The Farm Magazine has been running editorial comment every issue relative to the evils of the free seed practice.

Farm Life, Chicago, Ill.: We have always opposed the free distribution of seed.

The Farmers' Tribune, Sioux City, Iowa: The Farmers' Tribune has for years been opposed to free seed graft.

The Farmer and Stockman, Ashburn, Ga.: I am on principle opposed to the free distribution of seed by the Government.

Fruitman and Gardener, Mount Vernon, Iowa: The horticultural and gardening interests are a unit in opposing the worse than useless waste of money on inferior seeds.

The Farmers' Advocate, Topeka, Kans.: I consider the free distribution of seeds by Congress, as is generally given out, a petty political graft which is an imposition on people.

The Field and Farm, Denver, Colo.: We have been hammering on this question a good many years and it is our intention to keep hammering. We trust the fight against this pernicious practice will prove effective.

Farmers' Review, Chicago, Ill.: We hope that concerted efforts in this direction y all interested will result in doing away with the evil.

The Farmers' Guide, Huntington, Ind.: The Farmers' Guide has been opposing this for several years.

House and Garden, Philadelphia, Pa.: We are entirely in sympathy with the movement against this free distribution.

The Modern Farmer, St. Joseph, Mo.: The Modern Farmer has been talking against free seed for the last ten years. We think the Government has no business distributing free seed or free anything else.

Farm, Stock, and Home, Minneapolis, Minn.: Our paper has ever since its founding, nearly twenty-two years ago, been consistently and continually opposed to the Government seed distribution.

Kansas Farmer, Topeka, Kans.: The free seed graft amounts in the aggregate to an enormous raid on the Treasury. It is a perversion of the useful original purpose of aiding in the introduction and distribution of new varieties of cultivated plants. How any honorable man can support its continuance is hard to understand.

Kimballs' Dairy Farmer, Waterloo, Iowa: With reference to the free seed proposition, we are mighty glad to write as strong an article as we are able on this question.

The Strawberry, Three Rivers, Mich.: We trust that the vigor with which this work is being prosecuted may result in permanently eliminating this unjustifiable expenditure.

Oklahoma Farmer, Guthrie, Okla.: We consider this an outrage on both seed producers and sellers, and a scheme which does the farmers but little good.

National Stockman and Farmer, Pittsburg, Pa.: We are very much opposed to the perpetuation of the free-seed evil.

North Pacific Rural Spirit, Portland, Oreg.: An unjust practice of the Government.

The North Dakota Farmer, Lisbon, N. Dak.: We have always contended that the money expended was largely thrown away.

The New York Farmer: For years the New York Farmer has opposed the appropriation for this purpose.

The National Nurseryman, Ithaca, N. Y.: I am very much in sympathy with your antiseed crusade. I think, with you, that it simply needs a little more hammering on this subject through the representatives of the people to make them realize that the farmers and persons interested are, if not actively opposed to the principles of this distribution, completely unaided by the seed sent out.

The Modern Farmer and Busy Bee, St. Joseph, Mo.: The Modern Farmer has always been opposed to the distribution of seed by the Government.

The Woman's Farm Journal (The Woman's Magazine), St. Louis, Mo.: We assure you of our sympathy in the work which you have on hand, and our willingness to do anything possible to help you.

Southern Planter, Richmond, Va.: An abuse of public authority and a waste of the taxpayer's money. Never during the nearly twenty years which I have edited this journal have I received any remonstrance from any reader against the position I have taken on this seed-distribution question, but I have frequently been commended for attacking it.

Editor The Southern Tobaccoist and Modern Farmer, Richmond, Va.: You are at liberty to use my name as an opponent of the free seed distribution.

The Dairy Record, St. Paul, Minn.: You may count on us for whatever little we can do in this matter, as we are in hearty sympathy with those who want it abolished.

New York Produce Review, New York City: We have opposed this matter for years editorially and are pleased to add another shot.

The Elgin Dairy Report, Elgin, Ill.: We have your favor regarding the seed business and have already communicated with our Congressmen in regard to the same.

Southern Ruralist Company, Atlanta, Ga.: We have already taken this matter up with our Representatives in Congress, and shall have something to say about it editorially.

The Practical Farmer, Philadelphia: I have written to Senator Proctor protesting against the insulting and utterly unwarranted insinuations of the friends of the free-seed graft in the House and gave him some information as to the way the seeds are handled in the South.

Rural Spirit, Portland, Oreg.: We are mailing Senator Proctor a copy of our paper in which one of our editorials expresses our views pretty fully regarding

free-seed distribution. Trust that this will aid somewhat toward the desired end.

The Florists' Review, Chicago, Ill.: We shall be glad to have you advise us as to the date of the hearing on free seeds before the Senate Committee on Agriculture. We shall endeavor to be represented.

Southern Agriculturist and Home, Nashville, Tenn.: We have already written letters on the free-seed question to our Representatives in Washington, but at your suggestion we are writing Senator Proctor.

The Ohio Farmer, Cleveland, Ohio: We have written to Senator Redfield Proctor.

Among other papers whose editors have written letters expressing their views on this subject are the following:

The Southern Planter, Richmond, Va.  
 The Florists' Review, Chicago, Ill.  
 The Farm and Ranch, Dallas, Tex.  
 The Farmers' Voice, Chicago, Ill.  
 The Indiana Farmer, Indianapolis, Ind.  
 The Implement Age, Philadelphia.  
 Illinois State Journal, Springfield, Ill.  
 Farm Implements, Minneapolis, Minn.  
 Agricultural Experiments, Minneapolis, Minn.  
 The Kentucky Farmer and Breeder, Lexington, Ky.  
 The Agricultural Epitomist, Spencer, Ind.  
 The Columbus (Ga.) Ledger.  
 The Nut Grower, Poulan, Ga.  
 The Montgomery (Ala.) Advertiser.  
 Minneapolis (Minn.) Journal.  
 The Montgomery (Ala.) Times.  
 The Evening Standard, New Bedford, Mass.  
 The Boston (Mass.) Globe.  
 The Jamestown (N. Y.) Post.  
 The Hornellsville (N. Y.) Times.  
 The Standard, Bridgeport, Conn.  
 The Albany (N. Y.) Argus.  
 Pittsburg (Pa.) Chronicle-Telegraph.  
 The Detroit (Mich.) Times.  
 The Farm Students' Review, University of Minnesota.

I also beg the indulgence of the committee to introduce some extracts from letters from the daily newspapers; not editorials, but letters, showing the editors are personally interested. They are as follows:

#### LETTERS FROM DAILY NEWSPAPERS.

The Gazette-Chronicle, Augusta, Ga.: We will take pleasure in giving editorial attention to this matter and in doing what we can with our own Representatives in Congress.

Denison (Tex.) Herald: The Herald has already taken up this matter in opposition to the free distribution of seed by the Government and has had considerable to say about it one way and another.

Wheeling (W. Va.) Intelligencer: We have written the Members of Congress from this district urging the same view that you take.

Waco (Tex.) Times-Herald: We have always been opposed to it, and for several years we have been condemning it in our editorial department.

The South, Holly Springs, Miss.: Emphatically opposed to the custom by the Government.

Daily Messenger, Washington, N. C.: Favor using seed appropriation only for purchase and distribution of rare and valuable seeds.

The News and Herald, Winnsboro, N. C.: This money should be spent only for new seeds to send out for the purpose of experimenting.

The Asheville (N. C.) Citizen: Opposed to the promiscuous distribution of common seeds.

Appalachian, Bryson, N. C.: Condemn distribution of common seeds.

Cherokee News, Gaffney, S. C.: Opposed to seed graft. Favor discriminate distribution experiment stations.



Clinton (S. C.) Chronicle: We regard the free distribution of cheap seeds as nothing better than a species of graft.

The Lantern, Chester, N. C.: The appropriation for distribution of common seeds is pure waste.

The Covington (Tenn.) Leader: We have never seen any practical results from the Government's indiscriminate distribution of seed. Is a useless waste of public money.

Commercial, Collins, Miss.: We are strictly in favor of abolishing this expensive and foolish custom.

The Calhoun Monitor, Pittsboro, Miss.: Am unalterably opposed to the free distribution of seeds in the manner in which it is now conducted.

The Enterprise, Mullins, S. C.: A useless expense to the Government.

The Dixie Home, Birmingham, Ala.: The Government should not make this appropriation.

The Durham (N. C.) Recorder: The Government has no more business coming in contact with the seed business than any other.

Darlington (S. C.) News: Am opposed to distributing seeds at random over country, but favor money being given to Secretary of Agriculture to secure new and valuable seeds for experiment stations.

Fort Worth (Tex.) Record: The Record has repeatedly declared itself opposed to this iniquity.

Fairfax (S. C.) Enterprise: Am in favor of the Government appropriation being used in the purchase and distribution of valuable seeds only.

Everything, Greensboro, N. C.: The free-seed graft is purely a high-handed outrage. The entire appropriation should be changed to different hands.

News and Sun, Griffin, Ga.: Do not favor indiscriminate distribution of cheap seeds, but do think it very proper that new or rare seeds should be thus sent out for fair tests in different parts of the country.

The Ledger and Grit and Steel, Gaffney, S. C.: Am opposed to the distribution of seeds as has been carried on in recent years.

The Hartford (Ky.) Herald: Am not in favor of the free distribution of common garden seeds.

The Houston (Tex.) Chronicle: We have always condemned the free-seed graft.

Hickory Flat (Miss.) Banner: Am in favor of stopping distribution of garden seeds.

The News, Jackson, Miss.: The News is much opposed to free seed distribution as an unnecessary expense and a paternalistic practice which should be stopped.

The Batesburg (S. C.) Advocate: The free distribution of seeds should not be tolerated.

Lexington (Ky.) Leader: The free garden seed distribution seems to us to be contrary to our governmental traditions and a subversion of the original purpose for which the seed appropriation was intended. It looks to us like a waste of money.

The Greene County Herald, Leakesville, Miss.: A nuisance and an intolerable waste of money.

Kings Mountain (N. C.) Herald: I oppose the free distribution of worthless seeds.

Virginia Pilot, Norfolk, Va.: We have had several editorials opposing the continuation of the seed distribution.

Our Mountain Home, Asheville, N. C.: Have no sympathy with the free-seed business.

New Albany (Miss.) Gazette: The distribution of common garden seed is money wasted.

The Siler City (N. C.) Grit: The money should be given to Secretary Wilson to secure new and valuable seeds to distribute through the experiment stations.

The Landmark, Statesville, N. C.: The distribution is the veriest humbug.

Sanford (N. C.) Express: The seeds are worthless and the farmers know it. Cut out the common garden seeds, as the Senate proposes, and let the Secretary of Agriculture use the funds for making experiments and developing new seeds.

The Record, Rock Hill, S. C.: Am opposed to the distribution of common garden seeds. It is a waste of money, which should go toward strengthening the efforts of the Secretary of Agriculture in propagating new and valuable seeds.

The People, Camden, S. C.: I am opposed to the proposition mentioned as now before the Senate committee referring to the free distribution of seed.

The Prentiss Plaindealer, Booneville, Miss.: So far as I am individually concerned I have for years known that the practice of sending out seeds was a farce and of no practical benefit, except as a means of reminding us that we had a Congressman, which, if it were not for the annual seed distribution, we probably would overlook.

The Sterling (Kans.) Bulletin: The newspapers of Kansas regard the distribution of garden seeds by Congressmen as a joke. The appropriation devoted to improving plants would really bring some benefit to the agriculturists of the country.

The Spencer (Iowa) Herald: Government seed distribution is a wrong idea, and should be stopped. There is nothing that can be said in favor of it as now conducted.

Sioux City (Iowa) Courier: We have always been opposed to the free distribution of the seeds in question. The present system is an outrage and nothing but a nuisance.

The Every Other Daily Union, Belle Plaine, Iowa: I can not too emphatically state that I think the practice is an abuse which is run into the ground. The distribution of rare and valuable seeds is an entirely different matter, and, as I understand the law, it was the distribution of such seeds only that was originally contemplated.

The Winfield (Kans.) Weekly Tribune: I regard the free seed distribution the most ridiculous of the many absurd propositions this Government is tied to. It ought to be abolished.

The Winterset (Iowa) Madisonian: I think the cost of the distribution is more than the value of the service rendered, and that the money could be more wisely expended in other channels.

Rockwell City (Iowa) Advocate: The free distribution of garden seeds is a useless expense.

The Atlantic (Iowa) Messenger: The plan to send rare and valuable seeds to experiment stations is a good one, but the old free-seed graft should be retired.

Clinton (Iowa) Daily Advertiser: The work of the Department should be confined to introducing new varieties of vegetables and other products.

The Semi-Weekly Gazette, Cedar Falls, Iowa: I believe it a useless waste of money to distribute the kinds of seeds now being distributed. It accomplishes no good purpose and is becoming a huge joke throughout the country. The seeds are very ordinary as to class and inferior as to quality.

The Mail and Times, Des Moines, Iowa: Favor the use of the seed money for the purchase and distribution of rare and valuable seeds only. I hope this sensible change may be brought about.

The Denison (Iowa) Bulletin: The present distribution of garden seeds by the Government is considered a farce by nine out of every ten people who think about it at all. And nearly the same proportion of people believe that the purchase of tons of indescribably poor and mixed-up seeds every year is a waste and a graft which ought to be exposed.

The Advocate, Eldorado, Kans.: I never could see the sense in the distribution of common garden seeds as conducted in the past.

Encampment (Wyo.) Herald: Consider seed distribution foolish waste of money as now conducted.

The Duluth (Minn.) Evening Herald: This has been a hobby with the Evening Herald for some time past, and a great many articles and editorials have appeared in its columns denouncing this graft. This abuse has been carried on so long a time that people have lost sight of this extravagant nuisance. I sincerely trust the present Congress will abolish the custom.

Iowa-Posten, Des Moines, Iowa: I have always looked at this free seed distribution by the Government as a puerile undertaking which can exist only because the farmers in Congress are in a hopeless minority. A practical, intelligent farmer could never sanction such waste of money to no purpose.

Daily Capital, Jamestown, N. Dak.: We are opposed to the old method of distributing seeds by the Government, but heartily support the distribution of rare and valuable seeds only, when carried on along the lines of work conducted by State experiment stations. The work of the single experiment station in North Dakota has saved the farmers millions of dollars.

The Daily Eagle-Star, Marinette, Wis.: We have published considerable matter in opposition to this free seed distribution.

Journal, Lansing, Iowa: Free distribution of garden seeds should be discontinued by the Government.

The Republican, Lincoln, Kans.: I believe the free distribution of common garden seeds to be the most foolish, useless, and defenseless method of dissipating the public funds that exists in the American Congress at the present time. I am heartily in favor of the purchase and distribution of rare and valuable seeds. This has resulted in great good to western Kansas by the introduction of several new forage crops during the past fifteen years, and, I think, is a valuable investment of public funds.

The Journal, North Freedom, Wis.: I didn't think Congress could be inveigled into any such political fraud as the seed question, with the evils of the distribution of seed.

Newton (Iowa) Journal: I consider the distribution of seeds, etc., as it has been done in the past, to be the most infernal piece of nonsense on record.

The Daily Eagle-Star, Marinette, Wis.: The distribution of any rare or valuable seeds, which may be imported or originated through the Agricultural Department, is something which we believe ought not to be disturbed, but the general free distribution, through Members of Congress, of peas, beans, corn, squash, and similar seeds we believe a great evil.

The Minneapolis (Minn.) Daily News: I am certainly opposed to free seed distribution, and must say most emphatically my opposition is not due to any advertising influence. Distribution of rare or valuable seeds should be continued. The sending of bushels of common grain seeds through the mail should be stopped.

The McGregor (Iowa) News: We are in favor of the distribution of rare and valuable seeds only, instead of the present methods.

The Pratt (Kans.) Union: I am heartily opposed to the foolish free distribution of common garden seeds. I use my columns constantly in opposition to all such waste of funds. Choice seeds would do good.

The Republican Register, Washington, Kans.: The garden-seed graft has had its day. The free distribution of seeds, as it has been practiced in the past, doesn't benefit anybody on earth. The farmer doesn't want the seeds, and he frequently finds that if he does sow them they are no good.

The Democrat, Akron, Ohio: We are in thorough sympathy with your statement in this regard, and trust you will be successful in abating the nuisance.

The Bay City (Mich.) Tribune: We have already had several editorials condemning the free seed distribution.

The Crawfordsville (Ind.) Journal: We are glad to state that we are in perfect accord with your views on the subject of free-seed graft, and that we have been hammering away against it for some time.

The Dayton (Ohio) Journal: The distribution of new, rare, and valuable seeds is something that the Government ought to do more in than it is doing, but when it comes to the distribution of the seeds of common products the proposition is absurd. The expenditures for seeds have been made without due consideration for results.

The Detroit (Mich.) Journal: The Journal has been pounding on the free-seed graft for years back.

The Daily News, Dayton, Ohio: This is a practice which has been much abused, and has really resulted in no material benefit to the people.

The Joliet (Ill.) Daily News: Our people here are opposed to the free seed distribution on general principles.

The Morning News, Muskegon, Mich.: The promiscuous distribution of seeds is a useless expense, and brings no adequate returns to the Government or the people.

The Philadelphia (Pa.) Inquirer: We beg to inclose you editorial in reference to "No more free seeds."

The Pittsburg (Pa.) Gazette: Several years ago the Gazette took this matter up but did not seem to make any great progress toward a settlement. However I trust you will be more successful.

Pittsburg (Pa.) Chronicle Telegraph: Our editorial writer, Mr. Simpson, will have something to say regarding the "free seed distribution legislation," as he entirely agrees with your favor in regard to the matter.

The Utica (N. Y.) Press: We have had several editorials on this subject. We shall be glad to keep the matter up, and think it is in the best interest of all to have that appropriation done away with.

The Patriot, Concord, N. H.: Neither as an editor nor as a citizen do I believe in the governmental free distribution of common garden seeds or of

any other kind of seeds. The whole thing should be summarily dispensed with and disposed of.

Hampshire Gazette, Northampton, Mass.: We believe it inexpedient for the Government to distribute seeds as it has done for years.

Beverly (Mass.) Evening Times: We are in full sympathy.

The Lancaster (N. H.) Gazette: Among practical gardeners there has never been any attempt to use the seeds that have been so promiscuously sent out. By all means cut out the squash and pumpkins, and if the appropriation is to be continued let us have the rare and valuable seeds distributed to the different experiment stations.

The Newburyport (Mass.) Daily News: We have used about all of your matter on the seed question, considering it timely and exactly meeting our views upon the question.

Plymouth (N. H.) Record: The free seed distribution as carried out now is not doing the good intended, and the seeds as sent out now are principally good for chicken feed.

The Syracuse (N. Y.) Post-Standard: We deem the annual appropriation ridiculous, and have pleasure in cooperating for the defeat and permanent discontinuance of this old-time abuse.

Providence (R. I.) Journal and Evening Bulletin: The Providence Journal and the Evening Bulletin have for years contended against the wasteful use of money for free seed distribution. We have printed countless editorials on the matter and shall continue to do so until the practice is abandoned.

Terre Haute (Ind.) Morning Star: I have taken the matter up with our Congressman. He has promised not only to look into the matter thoroughly, but to use his personal influence.

Wheeling (W. Va.) Daily News: We have written the Members of Congress from this district urging the same view that you do.

Indianapolis (Ind.) News: Your letter reflects our views, which we have repeatedly expressed in the News.

The Republican News and Hamilton Telegraph, Hamilton, Ohio: We are going to give our immediate attention to this matter and are writing our Senator and Representative; also making editorial comment.

The Republican-Herald, Winona, Minn.: We are at your service.

The St. Paul (Minn.) Pioneer Press: We have already published several editorials on this subject and our Congressmen know thoroughly how we stand in the matter.

#### EXPRESSIONS GENERAL PRESS.

The Christian Union, Des Moines, Iowa: By all means let us have the new and valuable seeds, rather than pumpkin and parsnips.

Scottish Chief, Moxton, N. C.: I think some plan ought to be arrived at of distributing a better class of seed. The distribution of poor seeds brings the Agricultural Department into disrepute.

Confederate Veteran, Nashville, Tenn.: I agree with you that there should be a radical change in the practice of sending out seeds by the Government, and only the rare and valuable kinds sent out.

White Ribbon Bulletin, Fargo, N. Dak.: I regard the free distribution of garden seeds as an unnecessary expenditure of public money.

A. O. U. W. (Ancient Order United Workmen) Messenger, Nashville, Tenn.: The wholesale giving away of cheap and worthless seeds is a very unnecessary expense and should be stopped.

Textile Excelsior, Charlotte, N. C.: I am opposed to the practice first, last, and all the time.

National Printing Company, proprietors Bohemian-American Newspaper Union, Omaha, Nebr.: It has been our policy from way back to denounce the fake seed distribution. Many times we have pointed out the uselessness of the same and the constant waste.

Spirit of the West, Des Moines, Iowa: Spirit of the West is entirely willing to cut out the free distribution of pumpkin and squash seed and turn the appropriation over to Secretary Wilson to do the rest.

The Southern Lumberman, Nashville, Tenn.: From what we do know of it, are opposed to the custom.

Southern Christian Advocate, Spartanburg, S. C.: I am absolutely opposed to the free distribution by the Government of seeds, in most cases absolutely worthless.

The Keystone, Charleston, S. C.: We heartily disapprove of this promiscuous distribution of common seed and approve of the idea of using the appropriation for the distribution of rare and valuable seeds through State experiment stations.

The Labor Record, Kansas City, Kans.: My opinion is, cut out free distribution and use the money for the general betterment of crop conditions.

Maxwell's Talisman, Chicago, Ill.: We are opposed to this annual waste and interference with the business of the seedsmen on the part of the Government.

The Merchant and Manufacturer, Nashville, Tenn.: We are in hearty accord with the position that the distribution of common seeds should be stopped and the appropriation applied to the purchase of new and valuable seeds, etc., and their distribution.

#### NO LARGE FUND RAISED.

Mr. SMITH. I do not know how much money the seedsmen raised. I could not say. They may have raised \$100,000. But I might say this: In talking over this matter with Secretary Wilson he said to me, "Mr. Smith, I understand the seedsmen have raised \$10,000 on this proposition." I said: "Mr. Secretary, I do not know anything about it, but this is the cheapest campaign ever conducted in the city of Washington so far as I am personally informed." I said: "I did not get anything like \$10,000." He said: "When the seedsmen come on I will tell them they are not paying you near enough." [Laughter.]

Mr. SCOTT. As a newspaper man you are familiar with the facts, and I would like to ask you whether it is true or not that it is customary for interests of various kinds to maintain headquarters and to maintain an organization here in the city of Washington for the purpose of influencing legislation? For example, does the organized labor of the country maintain headquarters here?

Mr. SMITH. It does.

Mr. SCOTT. For the purpose of influencing legislation in which organized labor is interested?

Mr. SMITH. It does.

Mr. SCOTT. It is not considered illegitimate for anything of that kind to be done, is it?

Mr. SMITH. It is not. If you will permit me, Mr. Scott, to make an observation on that, I think if it was not for the fact that this matter has been up on the floor of the House and will be undoubtedly again, it would be a waste of your time and mine to discuss that point, it is so trivial. You know as well as I do that you gentlemen have people here, even before this committee, representing special interests all the time. As I say, I have been here ten years, and I have seen almost every industry in the United States represented here before committees at one time and another, especially during the tariff sessions. They come here from all over the country.

In the past ten years there has not been a single interest of importance which has not been represented before the committees, either favoring or opposing legislation of some character. That applies to the railroads, the shipbuilders, labor organizations, tobacco, sugar, butter, salt, cement, hides and leather, and a thousand others. But when the seed merchants come along and lift a feeble voice against the interference of the Government in their business—the only one case of its kind in this country, and this country the only one in the world where such is the case—they are denounced as "kid-gloved,

spike-tailed agriculturists" who "farm the farmer," and one impetuous Member even went so far as to term them "thieves."

As far as the seedsmen maintaining Washington headquarters, that you hear so much about, is concerned, this matter is really a very small part of my business. I do not mean financially; but I have a great deal of other business besides the free seeds on my hands. They allowed me a certain sum a week—I do not want to mention the exact amount, because I think it would be a little out of the way—and a certain sum, about the same amount, for printing and postage.

I sent letters to such agricultural associations as I could reach, obtaining the names from the Department of Agriculture and other sources, as best I could. I explained that we were working to have the appropriation changed so that really rare and valuable seed would be sent out. As a result of merely communicating with those interested, under a 1-cent stamp and in circular form, I have resolutions here from granges all over the country and from horticultural and other societies. I have my pockets full of them [exhibiting] and they are coming in in every mail, because these granges are now meeting. There are four State granges in session to-day.

MR. SCOTT. In that connection, have you a recapitulation that you could give to the stenographer in connection with your remarks, giving the number of papers of different classifications as to daily papers, agricultural journals, and so forth?

MR. SMITH. Yes, sir.

MR. SCOTT. Who have indorsed your position on this subject; and also giving a summary of the resolutions that have been passed by granges, stating how many granges or other farm organizations have passed similar resolutions?

MR. SMITH. Yes, sir.

MR. SCOTT. You will submit those as a part of your remarks?

MR. SMITH. Yes, sir.

THE CHAIRMAN. Give the stenographer the list. We can not put all that stuff [indicating] in the record, but we would like to have the names of the agricultural papers, the names of the agricultural associations, granges, patrons of husbandry, and all that sort of thing, so that it will appear in concise form.

MR. SMITH. I would like to read one or two resolutions.

THE CHAIRMAN. Have the granges acted on this matter?

MR. SMITH. This matter was originally brought up by the National Grange itself. I do not think that the National Grange ever had a communication, certainly not so far as I know, from the seedsmen. When it met in Portland, in 1904, it unanimously adopted such resolutions. It met just last month in Denver, and it again reaffirmed its position and unanimously adopted resolutions asking Congress, through your committee, to use this money for what they considered the real benefit of agriculture.

As a further evidence of how the National Grange regards this matter, I will read an extract from a letter of ex-Governor Bachelder, master of the National Grange, in which he says:

Replying to your favor of March 27, in regard to the elimination of the free-seed distribution by the Government, will say that this movement has the support of the National Grange. The legislative committee of the National Grange will meet in Washington and will aid in sustaining the report of the committee if in any way possible.

Mr. CANDLER. Did the Farmers' Cooperative Union adopt any resolutions?

Mr. SMITH. I understand, sir, from a member of the Farmers' Cooperative Union, which recently met at Topeka, Kans., that they have adopted resolutions, but I have not succeeded in getting them as yet. A member of the executive committee wrote me to that effect. He says—

there is no use adopting any more of these resolutions; they have already acted on that.

I think you will see that we are sincere about this.

Mr. LAMB. Nobody has questioned it.

Mr. SMITH. The farmers, the agriculturists, the seedsmen, the Department of Agriculture, and the press of the United States, daily and agricultural, are all a unit on this proposition. There may be a stray one here and there, but they are practically a unit.

Mr. LAMB. You say the farmers are a unit?

Mr. SMITH. I say the four forces. I do not say the farmers as a class are a unit; not at all; but the four forces are a unit.

Mr. CANDLER. I have had thousands of communications from farmers, and I have talked to thousands of them, and I have never yet found a farmer who was against it.

Mr. SMITH. Mr. Candler, if you will make an appropriation this year for plows I venture to say that you will get a request from everybody for a free plow.

Mr. CANDLER. I understand that; but I am speaking with reference to the point you make, that the farmers are all opposed to it.

Mr. SMITH. No; we admit that there are lots who are not; but our proposition is that if you go to the farmers and say you will give them some of these varieties of seeds in this exhibit [indicating], or you will give them some new, rare, and valuable seeds, perhaps of foreign growth, perhaps of domestic origin, such as the Department of Agriculture now introduces to a certain extent, do you not think they would rather have those rare seeds than these seeds [again indicating]? Does it not stand to reason that if you go to a man and say, "I will give you a grand piano or I will give you a melodeon," that he would take the grand piano?

Mr. CANDLER. Certainly.

#### NOT AGAINST RARE OR VALUABLE SEEDS.

Mr. SMITH. That is our contention. We are not trying to prevent you gentlemen from sending out seeds. We are not asking you to abandon the practice of sending out free seeds. I want to make that clear. Mr. Candler has taken great and intelligent interest in the subject, as has Mr. Lamb, and I want to make our position clear. We are not here endeavoring to take this away from you. Our proposition is to send out the seeds, if you wish. We do not think that Congressmen ought to send them out. I do not think that I ought to depend for my share of the quota of free seeds upon the favor of the Congressman from my district. He sent me a bundle last year, and they laid around for awhile and were finally fed to the chickens.

Mr. CANDLER. I send them all alike.

The CHAIRMAN. You have no Republicans down your way?

Mr. CANDLER. Yes, I have. I send them to them, too.

Mr. SMITH. If you give them to the people who request them, and give them to the people who will plant the new and improved varieties, like long-staple cotton and so on, and report on it, and are benefited thereby, give it to them. We think if a man wants some new variety of cauliflower, he ought to write to the Department of Agriculture and not to a Member of Congress.

Mr. CANDLER. We are here to serve the people. We are patriotic, and we want to serve them.

Mr. SMITH. I say you ought to be relieved of that duty, but if you want to send them out, do so.

Mr. CANDLER. Instead of wanting to be relieved, we are hunting for more ways in which we can do them favors.

Mr. SMITH. I thoroughly agree with you on that.

Mr. CANDLER. The only man I have found who has opposed it in my country, and who is the single solitary exception that I have seen, was a fellow who said he had some seeds for sale, and he said he would rather I would not send any to that place.

Mr. SMITH. Can you wonder at his objection?

The CHAIRMAN. That is where you exercise an unjust power. That is a trust.

Mr. CANDLER. I send them all alike.

The CHAIRMAN. And the Government furnished you with the club?

Mr. SMITH. Mr. Davis has said, in answer to a question: "I send out 30,000 to 35,000 packages of seed in my district, but I do not think it does you gentlemen any harm, because I only send one package to each man." If there are 35,000 men in his district who want seeds, and he gives a package to each man, it is to be presumed, and I think he will agree to that, that they will go to men who otherwise would buy seed, and he has taken away 30,000 to 35,000 customers from the seed dealers of the United States and especially from those living down there, and takes away from that trade every year to the extent of one package of seed to each man. Of course, if a man is going to plant an acre of turnips and Mr. Davis gives him a tenth of an ounce, he does not ruin that customer. If the packages were sent to the same people every year, it would not be so bad, but here is the way it often works out, and I speak from personal observation:

A district has a Republican Representative. He sends his seeds to the Republicans in his district, and this continues for some years, so that the retailers can estimate fairly how much seed they can sell each year in that district, because conditions are approximately the same from year to year. But the Republican is replaced by a Democrat. The new member distributes his quota to an entirely different set of people, and the retailers, who have laid in a supply for the Democrats, find they are now being supplied by Uncle Sam, while the Republicans, their noses out of joint, want entirely different seeds from what the retailer is prepared to supply.

I do not mean to say, Mr. Chairman, that this is always the case, for indeed I know of members who distribute their quota to their constituents regardless of political affiliations. But human nature is such that anyone having something to distribute, even if that something cost him nothing, will instinctively favor his friends, and in



this instance his political friends. Consequently it is not derogatory to the House of Representatives to assert what I believe to be the case, that at least nine-tenths of the packages of seeds distributed go to those of the same political faith as the Member distributing them. The same is equally true when a new man wrests the nomination from an old Representative. They have different friends.

It is a well-known practice for some Members of Congress to exchange their quotas of seeds for public documents. That is, a city Member, whose constituents have no place to plant the seeds and no fowls to which they can feed them, will bargain with another from a rural district, exchanging his seeds for certain documents for which No. 2's constituents have no use. In this manner I have known Members of the House to secure 50,000 and 60,000 packages of seeds from a single distribution. They dump these into their districts and demoralize the whole seed trade therein. Then they fall "outside the breastworks" and a new Member comes to Washington.

He does not know the ropes and at the first session only secures his own quota, and probably has to search the party poll books for people to send them to. Thus the seed trade of that district finds that where it expected 50,000 packages only 12,000 are distributed and it is not ready to supply the deficiency and there is an unusual demand, which encourages them to order stock for next year. But by that time the new Member has been "put wise" and he bargains around until he secures 50,000 or 60,000 packages, which he distributes, and the retail seedsmen find themselves with their extra stock on hand and no purchasers.

Mr. CANDLER. One package of seed will not plant a garden.

Mr. SMITH. One package of these seeds will plant a good deal more than I could plant in my garden. If my Congressman had given me my seed in time this year and they had been the kind of seed I wanted to plant I would not have had any seed to buy. I have a small lot, and one of those packages of onions [exhibiting] would raise more onions than I would care to cultivate.

Mr. COCKS. Did you ever try to raise onions?

Mr. SMITH. Some years ago, back in Indiana. I was raised on a farm. I was not born there, but I was raised on a farm, and when I got what little education I possess I lived on the farm and drove to college each day. I have worked in the field from sunrise to sunset, and I have done all kinds of farm work. I am glad of it, and I would like to have the chance to do it again.

The CHAIRMAN. I will give you a chance. The 1st of next April you come right along, and I will give you a job.

Mr. SMITH. The chairman has asked me about the resolutions of granges, and I want to, in all seriousness, present to you gentlemen a letter which I have here, and I do not wish to be dramatic about it, but it is as a voice from the grave. I am going to read to you, gentlemen, with your permission, probably the last letter that was ever written by the man who introduced these resolutions before the National Grange at Portland, Oreg., in 1904, and who introduced them at Denver in 1906 at the recent annual meeting of the National Grange; who was before the Senate committee, and who would have been here to-day if he had not died within the last three or four

days. That man went to Denver. He had been fighting free seeds for years. He lived out in Maryland, and was master of the Maryland State Grange. He had been fighting free seeds, as I said, for years, and as far as I know I do not think he ever got even a cigar from any seedsman or anybody connected with this business. He practically gave up his life in the cause. He came into my office before going to Denver, and he said, "I am a sick man, a very sick man. But," he said, "I am going out to Denver to appear before the National Grange on this proposition." He did go to Denver. He came home and he wrote me this letter. I had written to him asking for a copy of the resolutions:

MARYLAND STATE GRANGE,  
OFFICE OF THE MASTER,  
*Hyattsville, Md., December 6, 1906.*

MR. W. W. SMITH.

DEAR SIR: Yours of December 4 at hand. In reply will say that I am afraid I will not be able to comply with your request to appear before the House committee on the 12th, from the fact that I have been sick since my return from Denver, the 26th of November. Even though I were well, our State grange meets at Cumberland, Md., on the 11th and 12th of December, so it would be impossible for me to be there.

I will inclose the resolution I offered at the meeting of the National Grange. It was referred to the committee on agriculture. They reported favorable to its unanimous adoption, which was done. If it would be of any assistance, use it as you see fit.

By order of:

J. B. AGER.

MR. SMITH. Mr. Ager died the following day.

MR. BOLGIANO. Mr. Ager is the man who had the 100-acre farm with the 100 head of stock. That was Mr. J. B. Ager. I was at his funeral on last Sunday.

MR. SMITH. This is the resolution adopted at the National Grange at Denver. Ex-Governor Bachelder, of New Hampshire, was master of the National Grange. He came all the way to Washington last spring to appear before the Senate Committee on Agriculture on this matter and to present the views of the grange. They have between 800,000 and 1,000,000 members. As far as I know, and I have inquired into the subject very carefully, there has never been a grange nor an organization of farmers of any kind, if it has acted at all on this subject, that has not condemned this form of distribution.

MR. WOOD. Were those resolutions always unanimously adopted?

MR. SMITH. Yes.

MR. WOOD. Nobody got up and objected to them.

MR. SMITH. As the members will see, when they read them—because I am going to present them for that purpose—they were unanimously adopted.

The CHAIRMAN. Read those that you have there.

RESOLUTIONS NATIONAL GRANGE, PATRONS OF HUSBANDRY, REPRESENTING 800,000 FARMERS, ADOPTED AT DENVER, COLO., NOVEMBER, 1906.

Whereas Congress annually appropriates \$242,000 for the purchase of field, flower, and garden seeds, most of which are of a common variety;

And whereas the Department of Agriculture at Washington expends as much more in their distribution, making, in round numbers, a half million dollars;

And whereas the farmers of the country receive comparatively no benefit from it, we believe the money could be more wisely expended: Therefore, be it

*Resolved*, That we reaffirm and readopt the resolution unanimously adopted by the National Grange at its session held at Portland, Oreg., in November, 1904, which is as follows:

"We are unanimous in the conclusion that while the Agricultural Department at Washington should exert due diligence in its research for new food, forage, and other plants, and while there is something that can and perhaps should be done through the exchange of seeds, we can not conclude otherwise than that the general and free distribution of the many kinds and varieties of garden and field seeds by the Department is without benefit in any important sense and should be abandoned."

Mr. SMITH. You will see from the wording of this resolution that there is nothing manufactured about it. There are no printed forms of resolutions at all sent out by us. The farmers give what knowledge they have on the subject.

Two years ago, and more than a year and a half before the seedsmen ever took up this matter at all, part of these resolutions were passed.

At this point permit me to insert the resolutions unanimously adopted by the Farmers' National Congress, composed of 1,000 delegates from 30 States, which recently met at Quincy, Ill., as described by Professor Massey, a preceding witness:

*Resolved*, That we are opposed to the system of seed distribution as now conducted by the Federal Government, but believe in the work of exploring foreign countries for such seeds and plants as may be profitably introduced into this country, and recommend that the money expended for seed distribution as now conducted be added to the fund for maintaining American seed and plant explorers in other countries under direction of the United States Department of Agriculture, and the distribution of the same among the agricultural experiment stations of the country for practical test.

Mr. BROOKS. While you are speaking on the matter of resolutions and protests, have the State agricultural colleges, to your knowledge, taken any part one way or the other in this matter?

Mr. SMITH. I have these letters here from several hundred professors of agricultural experiment stations on this subject. They are all enthusiastic over the matter.

Mr. BROOKS. Just give us the resolutions.

#### DEPARTMENT AND SEEDSMEN IN ACCORD.

Mr. SMITH. With your permission I would like at some time, not to-day, perhaps, as it is late, to read some of those letters to the committee, and with your permission, I would like to file the names, and perhaps a line or two from a number of these people on this subject.

In response to the request of Representative Brooks I beg to present a synopsis of a few of the letters received from professors of agricultural colleges and experiment stations, hurriedly compiled.

#### EXPRESSIONS OF AGRICULTURAL COLLEGES.

B. W. Kilgore, director North Carolina experiment station: I should like to see the distribution of seeds through Congressmen discontinued.

A. M. Ten Eyck, professor of agronomy, Kansas State Agricultural College: I am very much in favor of using the appropriation for distributing free seeds for the purposes which you name.

Alfred Atkinson, agronomist Montana agricultural experiment station: This practice has always appeared to me about the most ridiculous one that is tolerated in this Republic.

W. H. Stevenson, professor of soils, Iowa State College and Experiment Station: I am heartily in favor of the movement which is on foot to get Congress to abolish the present free seed distribution scheme.

E. Mead Wilcox, botanist, Alabama Agricultural Experiment Station: I have for years looked upon this free seed business as a piece of nonsense and graft, and I hope it may be ended at the next session of Congress.

T. J. Burrill, University of Illinois: I have long been of the opinion that the distribution of seeds is an unwise, unprofitable, and even shameful use of money.

S. Avery, department of chemistry, University of Nebraska: I am greatly opposed to the free distribution of seeds.

Geo. B. Ellis, secretary Missouri State board of agriculture: I am heartily in sympathy with the movement to discontinue the free distribution of seeds to farmers. Of my own personal knowledge I know that 99 per cent of the farmers who receive these seeds do not appreciate them and receive very little benefit from them.

E. Davenport, dean and director, agricultural experiment station, University of Illinois: It is a custom that ought never to have been started, and the sooner it is terminated and the funds devoted to a more useful purpose, the better for all concerned.

F. L. Washburn, State entomologist, Minnesota Agricultural Experiment Station: The antifree-seed movement has my deepest sympathy. I am very much opposed to the present distribution of free seeds.

R. J. Redding, director Georgia Experiment Station: Perhaps it will be sufficient for me to express my very strong convictions to you, that the present method of distributing seeds is an outrageous waste of the public funds, and ought to be done away with at once.

James F. Brown, secretary Connecticut State board of agriculture: I beg to say that this board is in full sympathy with the movement to end the free-seed humbug.

Wm. P. Headden, Colorado State Agricultural College: I am heartily in favor of the antifree-seed movement. The money expended in seed distribution has always appeared to me to be money wasted; it neither relieves a want nor confers a favor.

S. W. Fletcher, professor horticulture, Michigan State Agricultural College: I shall bring the matter of free seed distribution before the Michigan State Horticultural Society next month and urge the adoption of resolutions.

J. T. Willard, professor of chemistry, Kansas State Agricultural College: I am heartily in favor of the abolition of the distribution of common seeds of poor quality that has been going on for so many years.

D. A. Gaumnitz, assistant in animal industry, Minnesota Agricultural Experiment Station: I am entirely in sympathy with the movement against the free distribution of seeds. I think it is universally admitted, in this State at least, that the practice is anything but a desirable one.

L. B. Judson, assistant professor, department of horticulture, New York State College of Agriculture: I am very much opposed to the present system of distributing seeds.

J. C. Kendall, assistant professor, North Carolina College of Agriculture and Mechanic Arts: I am thoroughly in sympathy with this movement to put a stop to the worse than useless practice of sending out free seeds.

W. A. Henry, dean and professor of agriculture, University of Wisconsin, College of Agriculture: I will gladly do what I can to help in doing away with the present method of free seed distribution.

Edmund J. James, president University of Illinois: This has always seemed to me a great waste of money, so far as it involved the distribution of seeds and plants which can be obtained by anyone at regular commercial rates from commercial houses. \* \* \* The giving away of common turnip seed is no more a Government function than the giving away of boots or clothes.

E. W. Nilgard, University of California, College of Agriculture: I have been trying to fight this absurdity, or graft, as it might be called, for the past twenty years. Professor Wickson, I understand, has taken measures to bring the subject before the horticultural and agricultural meetings this winter, and will do all he can to bring about the adoption of strong resolutions.

J. Willard Bolte, assistant professor, department of animal industry, Rhode Island College of Agriculture and Mechanic Arts: In my estimation, this is simply a petty means at heavy expense to enable people in power to remain there, and the money could undoubtedly be put to more profitable use.

R. W. Silvester, president Maryland Agricultural College: You may depend

upon me for all that I can do for the furtherance of the proposition which you make.

J. F. Duggar, director experiment station, Alabama Polytechnic Institute: I am in hearty sympathy with your efforts to make more profitable to American agriculture the money now used in the miscellaneous distribution of seed.

T. B. Symons, secretary Maryland State horticultural department: I am thoroughly in favor of your proposition and will place the matter before our State horticultural society at their meeting in Baltimore on December 5 and 6.

W. R. Dodson, director Louisiana State University experiment stations: I have your letter of November 5th in regard to the free distribution of seeds by Congressmen. I shall be glad to render you what assistance I can to bring about the desired modification in this respect.

G. S. Fraps, chemist to experiment station, Agricultural and Mechanical College of Texas: I am in favor of stopping the distribution of free seed and will write our Representative to that effect.

Samuel B. Green, professor department of agriculture and experiment station, University of Minnesota: While I am heartily with you in the matter of desiring that the appropriation now made for the distribution of ordinary garden seed be used for the distribution of really rare and valuable seeds and plants, yet I am not at all optimistic as to securing any such desirable change.

W. J. Elliott, dairyman, Montana Agricultural Experiment Station: I am already convinced that this seed distribution business is absolutely wrong.

Louis G. Michael, chemist, Iowa State College Agricultural Experiment Station: It is the general opinion of every thinking man that the annual free seed distribution, conducted on its present lines, has become a dead letter. I am heartily in favor of the change as suggested in your letter of November 7. The \$500,000 should be placed at the disposal of the Secretary of Agriculture.

B. C. Buffum, director of experiment station, University of Wyoming: I am fully in accord with scientific cooperation of the Department and stations with the farmer, but have not yet been convinced that any good has been derived through Congressional seeds.

James B. Dudley, president North Carolina State Agricultural and Mechanical College for the Colored Race: I am in full sympathy with the effort to have the free distribution of seeds as is now being done discontinued and the money used to increase the efficiency of the agricultural schools. Wishing you much success and assuring you of my willingness to help in any way that promises to be effective.

J. M. Drew, registrar University of Minnesota: I am glad to be of any service in the good work of trying to do away with the free seed distribution.

A. J. Moore, secretary Mississippi Agricultural and Mechanical College: I have always viewed the matter as being a very unwise and ill-advised law, and will be glad to see same repealed whether any direct appropriation is made for the agricultural interests before the repeal of the law or not. I wish you the greatest success in your efforts.

H. J. Patterson, director Maryland Agricultural Experiment Station: I heartily agree with you that it is desirable to formulate some plan by which the present plan of free distribution of seeds shall be discontinued and the money put to better use. I shall be glad to further this project whenever opportunity offers.

Joseph L. Hills, director Vermont Agricultural Experiment Station: I am heartily in favor of the movement you represent. However, argument does not appear to have any great weight with Congressmen in this matter. If both ridicule and logic could have killed the thing it would have been killed long ago.

George T. Winston, president North Carolina College of Agriculture and Mechanic Arts: I sympathize with the efforts you are making to change the law concerning seed distribution.

T. K. Bruner, secretary North Carolina department of agriculture: As secretary of the State Horticultural Society I desire to approve for that society the movement, and to ask you to report it in your fight against this useless expenditure of money.

I am sure also that the board of agriculture, when it meets in December, will be glad to go on record also in this regard.

J. L. Phillips, Virginia State entomologist: I wish to state that I am thoroughly in sympathy with the movement as presented, and hope you will succeed in it.

J. G. Moore, assistant commissioner dairy and food commission, State of Wisconsin: I am heartily in favor of the movement to stop the waste of money which has been expended for these free seeds. As secretary of the Wisconsin Buttermakers' Association I will bring it before our association, which meets in February, 5-8, 1907, and will try and have a resolution passed.

Mr. U. S. Baer, secretary of the Wisconsin Cheesemakers' Association, is also heartily in favor of the plan and will see that a like resolution is passed through the cheese-makers' association.

We will also see what can be done to influence the Representatives and Senators from this district.

Franklin Dye, secretary New Jersey State board of agriculture: I have yours in relation to some action looking to a change in the management of the free-seed distribution. The reforms you speak of are, in my judgment, needed. The question has been before our State board of agriculture in the past, and I shall be pleased to lay it before them at their meeting next January.

O. C. Gregg, superintendent Minnesota Farmers' Institute: I am in hearty sympathy with what you are proposing to have enacted by our National Legislature.

W. N. Hutt, State horticulturist, North Carolina department of agriculture: I think the work of the Division of Seed and Plant Introduction would be of much more value to the country at large if its entire attention were devoted to the introduction and distribution of foreign seed which by experiment might prove useful to our American conditions. I do not see any use in the sending out of small packages of common seeds which can be readily purchased from local seedmen.

John Isaac, secretary commission of horticulture, State of California: The appropriation for free seeds is a humbug of the first water and a graft, and should be abolished. If the appropriation is turned over to the United States Department of Agriculture it will certainly be a good thing.

There has been a misapprehension, I will say, on this subject in the minds of some people that the Department of Agriculture and the seedsmen are working on divergent lines in this, and that they are not working on parallel lines. There is nothing more forcible we can say to support our argument than what the Secretary of Agriculture has said. He said it in personal and official communications; he said it over and over again, and he reaffirmed it to me less than a week or ten days ago, the last time I was down to see him about this, and the only time I ever said anything to him about it, I may say. So many inquiries have been made of the Department of Agriculture as to its attitude that Secretary Wilson had an extract from his annual report of 1903 reprinted, and to inquirers he incloses the same. I quote a letter from Professor Galloway, accompanying the extract:

The views of this Department with reference to the distribution of miscellaneous vegetable and flower seeds have been clearly set forth in our various reports. The attitude of the Department was stated by the Secretary in his report for 1903, extract from which I send inclosed.

The extract says:

With regard to securing and distributing miscellaneous garden and flower seeds, the fact remains that this work does not accomplish the ends for which the law was originally framed. There are collected, put up, and distributed now, on Congressional orders, nearly 40,000,000 packets of such seeds each year. These seeds are the best that can be obtained in the market, but from the fact that large numbers of packets are wanted the seed obtained can be of standard sorts only, such as are to be found everywhere for sale in the open market. As there is no practical object to be gained in distributing this kind of seed, it seems desirable that some change be made. To this end it would seem wise to limit our work entirely to securing and distributing seeds, plants, etc., of new and rare sorts \* \* \*. This is a line of work that would result in much more value to individual districts throughout the country than the distribution of a large quantity of common varieties of garden seed, which have no particular merits so far as newness or promise are concerned.

The Department divides the work into three parts:

(1) The securing, handling, and distribution of miscellaneous garden and flower seeds, etc.

(2) Securing and distributing comparatively new or little known kinds of various field and forage crop seeds, and the improvement of same by breeding.

(3) Introduction and dissemination of new and promising seeds and plants from foreign countries.

We stand squarely by the proposition, with the Department of Agriculture, that No. 2 and No. 3 in their schedule is all right. Give them a couple of million dollars, if you want to, and send every farmer an orange tree.

But No. 1 is dead wrong. When you are giving the farmer something that he might not be able to get without a great deal of trouble, all right; but where you give him something that the postman brings to the door as a gift, which is something that he can walk half a block to the store and buy, you interfere with legitimate business.

Here are some of the resolutions from the granges [exhibiting]. But before I go into that I have here a telegram which I received from the Maryland State Grange. The Maryland State Grange, the Indiana State Grange, and the Ohio State Grange are meeting yesterday and to-day, and, I think, the Pennsylvania State Grange.

Mr. HASKINS. And the Vermont State Grange, I understand.

#### RESOLUTIONS OF STATE GRANGES.

Mr. SMITH. That is the reason we can not present any more resolutions than we have.

Mr. COLE. You have not heard from Ohio?

Mr. SMITH. No, sir. I believe they are meeting to-day. Even down in the State of Kentucky, where Mr. Trimble comes from, and right adjoining the State from which Mr. Gaines comes—both ardent free-seeders; I do not take any issue with them on that subject—but even in the State of Kentucky the Kentucky State Grange had this matter brought before it at a joint meeting of the State Grange and the Farmers' Institute, presented by some of their members, and they got up immediately and unanimously adopted resolutions, which I will have the pleasure of presenting to the committee, against this free-seed distribution as it is at present conducted.

*Resolutions adopted by the joint convention of the Farmers' Institute and Kentucky State Grange, at Lexington, Ky., October 24, 1906.*

Whereas the distribution of common garden seeds by the United States Department of Agriculture has become a misuse of public funds; and

Whereas the farmers of this country derive comparatively no benefit from it, and we believe that the money could be more wisely expended: Therefore, be it

*Resolved*, 1. That we are opposed to the Congressional free distribution of seeds as now conducted.

2. That we heartily indorse the action of the Agricultural Committee of the House in omitting from the agricultural appropriation bill the amount annually expended for this purpose.

3. That we appeal to the President of the United States and our Senators and Representatives in Congress to oppose this appropriation in the future and to devote the amount now annually appropriated toward the upbuilding of our agricultural colleges and experimental stations, the development of important crops, and the advancement in education pertaining to agriculture.

I also submit this telegram concerning the action of the Ohio Grange:

CLEVELAND, OHIO, December 14, 1906.

WILLIAM WOLFF SMITH,  
*Munsey Building, Washington, D. C.:*

Ohio State Grange unanimously opposes free seed distribution.

A. C. KENTEEL.

Also the resolutions adopted by the Ohio State Grange, as follows:

*Resolved*, That the Ohio State Grange heartily indorses the action of the National Grange in its opposition to free seed distribution.

Mr. SCOTT. What is the telegram you now have in your hand?

Mr. SMITH. This one is from the Maryland Grange:

Action has been taken and resolutions adopted.

F. A. HINKLE.

#### HOW IT IS DONE.

In explanation of how we do this work, I will say that I saw Mr. Hinkle's name on a letter head of the State Grange. I knew the Grange was going to meet in Cumberland, Md., and I wrote a letter of eight or ten lines, put a 2-cent stamp on it and sent it. The Grange meets, adopts the resolution, and the telegram comes to us. It only costs 2 cents. We do not need money. If I had \$40,000 or \$50,000 which I might spend, I might be tempted to go and put it in somebody's pocket, or throw it over a transom, as I have heard has been done. [Laughter.] We do not need much money for this campaign. I send out mimeographed circular letters, under 1-cent postage—that is, to the granges—about the various resolutions.

They meet and discuss the proposition. They adopt resolutions and they send them to their Senators or Representatives, to the committees or to me. I do not even inclose a stamped return envelope for this purpose. There is no use telling me that when a farmer sits down and writes you gentlemen that his association is unanimously opposed to this distribution, that such sentiment is manufactured. All we do is to call their attention to the fact that you are considering the question and they give you their views. As the parties most interested, their views, in my opinion, should receive consideration at your hands.

While we are on the subject of State associations may I direct your attention to the following, adopted at the thirty-fourth annual session of the State Grange of Illinois, December 12-14, 1905:

*Resolved*, As practical and independent farmers, that we call upon Congress to abolish its petty, annoying, and needless practice of broadcasting free and common garden seeds all over the rural districts, and that the control of seed distribution be placed under the Department of Agriculture and limited to experimental work.

OLIVER WILSON, *Master*,  
 JEANNETTE E. YATES, *Secretary*,  
*Illinois State Grange.*

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*Resolution adopted at the annual meeting of the Minnesota State Agricultural Society, in Minneapolis, in January, relating to free seed.*

*Resolved*, That, in our judgment, Congress should cease appropriating public money to pay for the distribution of seeds, and our Representatives in Congress are requested to use their influence to this sensible end.

E. W. RANDALL, *Secretary*.



*Resolution adopted by the twentieth annual closing Wisconsin Farmers' Institute,<sup>a</sup> held at Plymouth March 13, 14, and 15, 1903.*

*Resolved*, That the Round-up Farmers' Institute of Wisconsin urge the Congressmen and Senators from Wisconsin to vote to abolish the free distribution of common seeds by the Government, and to favor the appropriation of more money in the introduction of valuable new seeds and plants and in the improvement of plants and animals by breeding.

Also to resolutions of the New Jersey State Grange; the California State Horticultural Society; the New York Produce Exchange; the Louisville Chamber of Commerce; the New York Horticultural Society; the New York State Grange; New York State Fruit Growers' Association; New York State Sheep Breeders' Association; New York State Association of Bee Keepers' Societies; New York State Poultry Society; New York Florists' Club, etc.

But I have been asked by the agricultural press to personally present their resolutions. I have here the resolutions of the executive committee of the National Agricultural Press League, and also the resolutions of the league, and as these various agricultural associations meet you will hear more from them. I am sure of that. This is not very long. It reads:

NATIONAL AGRICULTURAL PRESS LEAGUE,  
OFFICE OF SECRETARY,  
Chicago, Ill., December 6, 1906.

NATIONAL AGRICULTURAL PRESS LEAGUE ON THE FREE DISTRIBUTION OF SEEDS.

At the annual session in Chicago, December 5, 1906, the National Agricultural Press League adopted by a unanimous vote the following resolutions:

Whereas, notwithstanding the protests of the farmers of the country, irrespective of locality or political affiliations, Congress at its last session again determined to continue the doubtful policy of distributing seeds of common and well known varieties; and

Whereas the National Grange, the Farmers' National Congress, and hundreds of State and local agricultural and horticultural societies have adopted resolutions denouncing this practice and calling on Congress to turn the money over to the Department of Agriculture for work with the State experiment stations in the developing new varieties of seeds and plants suitable to the localities; and

Whereas we believe that a vast majority of the farmers of this country are opposed to the existing policy: Therefore, be it

*Resolved*, That the National Agricultural Press League hereby reaffirms its opposition to the Congressional free seed distribution as at present conducted.

*Resolved further*, That copies of this resolution be sent to all members of this league and to the members of the Committee on Agriculture of the United States Senate and House of Representatives.

The members of the National Agricultural Press League are: Southern Ruralist, Atlanta, Ga.; Farmer's Call, Quincy, Ill.; Farm Home, Springfield, Ill.; Prairie Farmer, Chicago, Ill.; Live Stock World, Chicago, Ill.; Farmer's Guide, Huntington, Ind.; American Farmer, Indianapolis, Ind.; Up-to-Date Farming, Indianapolis, Ind.; Homestead, Des Moines, Iowa; Kansas Farmer, Topeka, Kans.; Missouri Valley Farmer, Topeka, Kans.; Farm Poultry, Boston, Mass.; Farm and Home, Springfield, Mass.; Michigan Farmer, Detroit, Mich.; Rural Magazine, Detroit, Mich.; Farm, Stock and Home, Minneapolis, Minn.; Farmer and Stockman, Kansas City, Mo.; Drovers' Telegram, Kansas City, Mo.; Fruit Grower, St. Joseph, Mo.; Colman's Rural World, St. Louis, Mo.; National Farmer and Stock Grower, St. Louis, Mo.; Northwestern Stockman and Farmer, Helena, Mont.; Metropolitan and Rural Home, New York, N. Y.; Ohio Farmer, Cleveland, Ohio; Gleanings in Bee Culture, Medina, Ohio; Farm and Fireside,

<sup>a</sup> This institute is supported by the State of Wisconsin, and is attended by 1,400 representative farmers.

Springfield, Ohio; Farm News, Springfield, Ohio; Pacific Northwest, Portland, Oreg.; Farm Journal, Philadelphia, Pa.; National Stockman and Farmer, Pittsburg, Pa.; Parks Floral Magazine, La Park, Pa.; Southwestern Farmer and Breeder, North Fort Worth, Tex.; Farm and Ranch, Dallas, Tex.; New England Farmer, Brattleboro, Vt.; Hoards' Dairyman, Fort Atkinson, Wis.; Wisconsin Farmer, Madison, Wis.

Very respectfully, yours,

JAMES M. PIERCE, *President.*  
JOHN M. STAHL, *Secretary.*

*Resolution by the executive committee of the National Agricultural Press League on free seed distribution.*

At a meeting of the executive committee of the National Agricultural Press League, held at St. Louis, Mo., May 12, the following resolution was adopted:

*Resolved*, That the National Agricultural Press League is opposed to the Government distribution of free seeds except so far as it is necessary for experimental purposes in the introduction of new, rare, and valuable seeds within the meaning of the original act authorizing seed distribution. The distribution of ordinary field, vegetable, and garden seeds as a gift from the Government is a degeneration from the original purpose and is not approved in principle or practice by self-respecting farmers or farmers' associations throughout the country, and there is no more to be said in favor of Government seed distribution as at present conducted than there would be in favor of a regular distribution to farmers or any other class of citizens of free beef, free sugar, or free flour at the expense of the taxpayers of the country.

It is directed that a copy of this resolution be sent to all Senators, Members of Congress, the United States Agricultural Department, agricultural papers, and to others interested.

PHILIP H. HALE,  
CHARLES F. MILLS,  
JOHN M. STAHL,

*Executive Committee Agricultural Press League.*

MR. SMITH. They have sent those resolutions to me and asked me to present them to you gentlemen, and I am very glad to be able to do so. In that connection I will say that not a penny was given them. They printed this at their own expense and sent it around to the other people at their own expense. They sent it to all the agricultural papers at their own expense, they were so interested in this matter.

We are not buying them and did not have to. There is no use in my reading these other resolutions [indicating], but I would like to have the members of the committee examine them and look at them to see what the farmers say on this subject. They write these resolutions. There are only two typewritten resolutions in the whole lot. No, there is only one, because I have a duplicate copy of this one. The resolutions of the Rippowam Grange are the only ones that are typewritten. The farmers write them out with their own hands and send them to me and to the Committee on Agriculture of the House and to the Committee on Agriculture of the Senate, all in response to a 1-cent circular. They must be interested in the subject.

I have time to read only a few extracts from a portion of the resolutions received. From granges, Patrons of Husbandry, I quote several, as follows:

Acorn Grange, No. 418, South Cushing, Me.: Believing that the free distribution of seeds by Congress is of no benefit and a useless extravagance \* \* \* we protest against any further appropriation for that purpose.—B. L. Stevens, master.

Wilson Grange, East Wilton, Me.: \* \* \* The members of Wilson Grange, No. 321, do wish to enter protest against the free distribution of so-called "rare and valuable" seeds and any appropriations whatever for this purpose, and also ask all Representatives and Senators to vote squarely against it.—E. E. Hardy, master.

Canton Grange, No. 110, Canton, Me.: \* \* \* Disapprove of the practice of Congress in annually appropriating a large sum for the purchase and distribution of so-called "rare and valuable" seeds, considering it an extravagant and useless expenditure of the people's money. \* \* \* And we petition Senators Hale and Frye, from Maine, also the Representatives in Congress, to vote against any appropriation for the free distribution of common garden seeds at the next session of Congress.—Mrs. C. W. Walker, secretary.

Pine Grove Grange, Bath, N. H.: \* \* \* Voted unanimously that the free distribution of seeds by the United States Government be discontinued, as it is certainly a needless waste of money.—Henry S. Long, master.

Chester Grange, No. 169, Chester, N. H.: It was voted that the sentiment of the grange was against the sending of free seeds.—Susie M. Gillingham, secretary.

Worcester and Norfolk Pomona Grange, No. 10: \* \* \* Passed a unanimous vote against the free seed distribution.—Moses U. Gaskill, master.

Granite Grange, South Worthington, Mass.: Voted unanimously: "Not in favor of the free seed distribution."—C. D. Blair, secretary.

East Lyme (Conn.) Grange, No. 157: It was voted: That we condemn the practice of the Government in sending out "free seeds."

Rippowam Grange, No. 145, Long Ridge, Stamford, Conn.: We \* \* \* do hereby condemn unequivocally the free distribution of seeds.

Lindenwald Grange, No. 985, Kinderhook, N. Y.: *Resolved*, That it is the unanimous sentiment that the free distribution of garden and other seeds by the Members of Congress is unnecessary and useless waste of money that should be stopped at once, and we petition our Congressmen and Senators to use their utmost endeavors to put an end to this useless waste of money.—Eugene Merwin, secretary.

Onondaga County Pomona Grange, N. Y.: Passed resolutions opposing the annual appropriation for the purchase and free distribution of seeds by Congress, and recommended the 30 subordinate granges of the county to do likewise. Our farmers' club will also pass resolutions.—John T. Williams.

Tarrytown Horticultural Society: *Resolved*, That we, the members of the Tarrytown Horticultural Society, sternly oppose any further appropriation of public money for the free distribution of common seeds.

Knoxboro (N. Y.) Grange, No. 758: \* \* \* Passed resolutions protesting against the distribution of free seed.—Mrs. E. T. Stone, secretary.

Thorofare Grange, Paulsboro, N. J.: Our grange is sending a set of resolutions to our Congressional Representatives to vote against any further appropriation for free seed distribution.—Rodman W. Clermont, secretary.

Ramsey (N. J.) Grange, No. 135: Ramsey Grange condemns the free seed distribution, as they think it unnecessary expense. Ramsey Grange has 200 members.—John H. Coe, master; E. C. Gurney, secretary.

Central Grange, No. 194, Towanda, Pa.: \* \* \* We are opposed to any "free seed appropriation."—D. W. Post, secretary.

Fairview Grange, No. 817, Farmington, Pa.: *Resolved*, That this grange and the farmers of this section demand that Congress pass a law abolishing the sending out of free seeds by Members of Congress.—Frank B. Brown, Harry Van Dusen, Wallace W. Davis, committee.

Wyebrook Grange, No. 1306, Barneston, Pa.: \* \* \* Unanimously condemn the practice of free-seed distribution and hereby demand that the law be repealed.—J. F. Lautz, master.

Spring Brook (Pa.) Grange, No. 1037: \* \* \* Has passed resolutions about the free-seed bill and sent same to the chairmen of the committees.—W. J. Jones, secretary.

Beaver Grange, No. 838, Conneautville, Pa.: Beaver Grange took action and went solid "antiseed."—S. B. Lawrence, W. R. De Groot, committee.

Holton (Mich.) Grange, No. 585: \* \* \* Unanimously voted against the free-seed distribution.

Ashbaugh Grange, No. 1202, Lake City, Mich.: Adopted resolutions condemning the practice of free-seed distribution and calling on our Senators and Representatives to vote against any appropriation for the free distribution of

common garden seeds at the next session of Congress.—Ida M. Teachout, secretary.

Gnadenhutzen Grange, No. 1486, Uhrichville, Ohio: \* \* \* Is opposed to the present practice of the free distribution of garden or other seeds by Congress.—Alice Gram, secretary.

Berlin Grange, No. 629, Delaware, Ohio: Unanimous opinion that such distribution is a useless expenditure of public money.—Elsie English, secretary.

Washington Grange, No. 5, Logan, Ohio: Stands unanimously opposed to the free distribution of so-called "rare and valuable" seeds as a genuine farce. That it is sheer waste of public money to continue the shameful fallacy.—E. E. Parish, master; J. W. Schaal, secretary.

Sylvester (Pa.) Grange, No. 1078: \* \* \* Resolutions passed asking our Senators and Congressmen to use all legitimate means to put a stop to the free seed distribution.—Hettie Daugherty, secretary.

Corydon (Pa.) Grange, No. 1205: \* \* \* *Resolved*, That we protest against and denounce the free seed distribution by Congress as an imposition on the people and a damage to agriculture. \* \* \*—R. Canfield, master; A. W. Reeves, secretary.

Quincy (Mich.) Grange, No. 152: *Resolved*, That Congress make no more such appropriation, and that our Representatives in Congress be sent a copy of these resolutions, and that they be earnestly requested to vote against further appropriations.—D. B. Scriptor, secretary.

Belleville (Mich.) Grange, No. 331: Instructed their secretary to write Senators and Representatives to vote against free distribution of seeds.—Margaret E. Hope, secretary.

Union Grange, No. 811, Rockford, Ill.: Unanimously condemns the practice of free seed distribution and hereby demands that the law be repealed.—T. L. Cleveland, master; Margaret McIntosh, secretary.

Sunnyside Grange, No. 7, Bridgeville, Del.: *Resolved*, That it is the sense of this grange that the free distribution of seeds and plants, as it is now conducted by act of Congress, should be discontinued.—E. M. Wright, secretary.

White Clover Grange, No. 279, Nehalem, Oreg.: *Resolved*, That we are unalterably opposed to the continuance of such distribution, and hereby request our Representatives in Congress to oppose all appropriations for such purposes. B. A. Todd, master; Lillian M. Zaddach, secretary.

Natal Grange, No. 302, Mist, Oreg.: The free distribution of "rare and valuable" seeds by Congress is a delusion and a fraud, as far as assisting agriculture is concerned. *Resolved*, That we denounce the practice of making appropriations for the purchase of such seeds. Nettie B. Peterson, secretary.

Romola Grange, No. 1192: *Resolved*, That we do bitterly protest against the free distribution of seeds by Congress. D. E. Robb, secretary.

Fleetville Grange, No. 1199: *Resolved*, That we declare ourselves in favor of discontinuing the free seed appropriation. E. E. Barber, master; W. H. Van Fleet, secretary.

Rhode Island State Grange, F. E. Marchant, master: You can count upon my doing anything possible to do away with the present method.

Kentucky State Grange and Farmers' Institute: Joint resolution unanimously adopted, recommending that the practice of the United States Congress of furnishing free seeds of all kinds to farmers throughout the United States be discontinued.

Delaware State Grange, Wesley Webb, secretary: I am in favor of confining the free seed distribution to new and valuable varieties, as was originally intended.

Michigan State Grange, Jennie Buell, secretary: I assure you that in so far as I can assist the cause of the suppression of free seed distribution I shall gladly do so.

California State Grange. J. W. Webb, lecturer: Hits me just right. For years I have protested. Wish you abundant success.

Emily L. Burnham, Michigan State Grange: I will bring the matter of the free distribution of seeds before the State Grange at its next meeting, also before the subordinate grange of which I am a member.

New Hampshire State Grange. H. O. Hadley, master: I believe, as you and as a large majority of the farmers, that this waste of money should be stopped.

Nashua (N. H.) Grange. J. Earlfred Hall, master: I am heartily in favor of your idea and will present it to the next meeting of Nashua Grange.

Erral (N. H.) Grange. S. R. Hanscom: I shall be most happy to do what little I can to stop the useless waste of Government funds through this free dis-

tribution. I will place your letter before my grange at its next meeting and have them act upon the matter.

Maine State Grange. O. Gardner, master: I am in full sympathy with you in regard to the free-seed-distribution humbug and will assist in every way in stopping the confounded nuisance.

Minnesota State Grange. S. G. Baird, master: Will be glad to do anything to help the good work along.

Also a few selected opinions of individuals, which will be of interest:

Harvie Jordan, president Southern Cotton Association: I will use the subject-matter as a basis for an editorial in The Cotton Journal at some time in the near future.

J. Harvey Whiteman, attorney, Wilmington, Del.: I take pleasure in adding my support to the movement that has been inaugurated looking toward the appropriation of funds, which have hitherto been applied to the distribution of seeds, to the Department of Agriculture in the various agricultural colleges.

Charles A. McClure, Walthall, Miss.: In reference to free distribution of seeds I will say that it is condemned by the farmers and people of this section. I think that the distribution of rare and valuable seeds would be universally favored.

James H. Jackson, M. D., The Jackson Sanatorium, Dansville, N. Y.: I heartily approve of your fight.

C. Watt Brandon, Pinedale, Wyo.: I would most certainly be in favor of rare and valuable seeds and seeds adapted to the various altitudes. Many of the seeds now sent to this high altitude, 7,160 feet, are seldom planted.

C. W. Eichling, manager Avenue Floral Company, New Orleans, La.: I shall not fail to bring the matter before the four horticultural societies we have in the South. I can assure you in advance of their hearty cooperation.

B. F. Smith, fruit and plant grower, Lawrence, Kans.: I was on the committee on resolutions at the August meeting of our county horticultural society. Our society was about unanimous in vote against free distribution of free seed.

W. A. Wickham, Tipton, Iowa: In regard to the Congressional free-seed distribution I will say that I am, and always have been, unalterably opposed to it.

C. M. Gallup, Brooklyn, Conn.: I am a farmer. I have never heard a farmer say a word favorable to the free-seed distribution, and I live in a section purely agricultural.

C. D. Tuener, Hillsboro, N. C.: We have great confidence in the integrity and ability of Secretary Wilson and his associates. Therefore we would say/give him all power consistent with reason to manage the affairs of his Department in such manner as he deems best.

Otis Bigelow, Silver Spring, Md.: I have written a strong letter of protest in the name of the farmers and gardeners of this and other States.

Mason Snowden, Wilkinson County Cotton Association, Woodville, Miss.: In regard to doing away with the free-seed distribution, will say that I am in favor of its annulment.

George P. Hardwick, secretary Farmers' Industrial Union, Britt, Iowa: I have nothing to offer favoring the free distribution of property, whether it be seeds or otherwise.

Colon C. Lillie, president Michigan State Dairy Association: I am heartily in sympathy with your efforts in this matter.

J. R. Simonton, Yarmouth (Mass.) Grange: I have always thought it amounted to nothing and should be stopped.

J. J. Haynie, editor Waynesboro (Miss.) News-Beacon: It would seem to us that this arrangement would be of incalculable benefit.

J. W. Berry, president board of regents Kansas State Agricultural College: I am sure there is not a farmer in this county that would defend it or even apologize for it. Mr. Breed, who represented this county at the farmers' meeting at Rock Island, Ill., says all the farmers at that congress consider this Government distribution a farce. You can count on my active support.

G. A. Ivins, board of directors, Iowa State Horticultural Society: I heartily concur with you in the movement of stopping the free-seed distribution.

Frank C. Pomeroy, Kansas house of representatives, Holton, Kans.: I am fully in accord with your effort to turn the money annually invested in the free-seed farce to better purpose.

James Withycombe, director Oregon Agricultural College and Experiment Station: I am heartily in sympathy with your movement for the elimination of the free-seed graft.

Andrew Olander, Isanti: I will do all I can to help do away with the free-seed distribution.

Mr. SMITH. I was not going to say anything about this, but Mr. Candler brought up the matter yesterday, after the hearing, and I want to state to the committee that in preparing the groundwork for this I thought it would be well to see what kind of a poll I could make of the House and the Senate. I wrote the members of both bodies a letter. I sent out three different kinds of letters to Members of the House. I sent one letter to those Members who had voted against free seeds, another to those Members who had voted in favor of free seeds, and still another to those who did not vote at all. I asked those who had voted against it to do so again. I asked those who were in favor of free seeds to reconsider their attitude, and those who did not vote at all I asked to please vote next time and to vote against free seeds. I do not think exception can be taken to that. This is from the letter of which you received a copy, Mr. Candler:

During the summer the seedsmen shall be in correspondence with many of your constituents on this subject. It would give them great pleasure if they could inform the seed trade of your district that at the next session you will cast your vote against any appropriation for the free distribution of common garden seeds. The seed trade favors the distribution of really "rare and valuable" seeds, but objects to the giving away of pease, lettuce, beans, radish, turnip, and pumpkin seed.

I honestly do not think any Member of Congress can take exception to that or consider it as a threat of any kind. We have been in correspondence. The seedsmen write letters from one to another about this, and wherever we can pick up a man—if we hear of some Member of Congress who did not vote last year—we are very much pleased if we hear he is going to vote against free seed this time. I may say, without mentioning names, that one of the gentlemen who took a most prominent and most influential part in the debate last year told me voluntarily that he has heard from the farmers of his district that they did not want these seeds; that they had adopted resolutions and sent them to him, and he said:

I am not going to speak against you on this subject, and I think you can safely say I am going to vote against free seeds this year.

That is the whole story. Are there any questions now that you would like to ask?

The CHAIRMAN. I would like to ask what answer you got from the gentleman from Mississippi?

Mr. CANDLER. He did not get any.

The CHAIRMAN. He did not make any answer at all?

Mr. SMITH. No; I do not think he did. A good many replied, and good many said they would give it consideration.

Mr. CANDLER. That is one of the few letters I did not answer. I have it right here now.

Mr. SMITH. I am sorry he did not answer it.

Mr. CANDLER. I have it right here.

Mr. SMITH. I am sorry he did not write and say, "Gentlemen, I shall certainly vote next year in the committee and on the floor of the House to give the people really rare and valuable seeds, as you sug-

gest, instead of common pumpkin seeds," but he did not. He has not yet, but I still have hopes. [Laughter.]

Mr. CANDLER. I never believe in people having false hopes. Therefore I will say that your hopes are unfounded.

Mr. SMITH. You would not vote against free seeds for any consideration or under any circumstances?

Mr. CANDLER. I will give the seeds to the farmer.

The CHAIRMAN. Mr. Smith, will you get that compiled in concise shape, so that it can be put in the record?

Mr. SMITH. Yes, sir.

Mr. HASKINS. Be sure that you spell according to the standard dictionaries.

Mr. SMITH. I can not spell any other way.

Mr. Chairman, if we have not made out a case now, I do not see how we can do it. We may get some more resolutions from granges or horticultural societies. I am sure all the State boards of agriculture are taking up the matter, we get a few new ones every day; but we can not make a much better case than we have made. If you do not pay any attention to these [indicating], what is the use of our bringing in here two or three or four thousand more editorials or hundreds of additional resolutions?

The CHAIRMAN. The trouble is we do not know what this is.

You must brief it up so that we can get it in the record and know just what the opposition is.

Mr. SMITH. I have it briefed up.

The CHAIRMAN. Then why did you not read it to us? Where is it?

Mr. SMITH. I did not suppose you would put all that in your record.

The CHAIRMAN. Why did you not read it?

Mr. SMITH. I did not know you gentlemen would want to hear it.

The CHAIRMAN. It would not take ten minutes to read a list of the associations you have there, and the granges and societies. That is what we would like to have you do.

Mr. SMITH. I thought I would submit that as part of my remarks.

The CHAIRMAN. Give us the names of the papers, and so forth.

Mr. SMITH. Suppose I read some of the resolutions of the granges now?

Mr. BROOKS. Give a statement of what granges you have that have acted, and what agricultural societies you have that have acted, stating the number that have acted in various States—something of that sort.

Mr. LAMB. You will have plenty of opportunity to put it in the record. Get it up concisely.

Mr. FIELD. Did you make any effort to get an expression of opinion from the southern section of the country?

Mr. SMITH. I did. I wrote to the people in the South. Mr. Candler will doubtless bear me out, and all the Southerners will bear me out in the fact that there are not very many farmers' organizations in the South of a general character. They are tobacco associations and cotton associations principally, and fruit growers and so on. It is hard to get these names. I had to write to the various members of the boards of agriculture of all the States, asking them to send me the names of the different organizations.

Mr. FIELD. Did you get an expression from the State of Texas?

Mr. SMITH. We have a resolution from the State of Texas. I would like to read it for the benefit of Mr. Field.

Mr. FIELD. From the agricultural college?

Mr. SMITH. Yes; I have a number of them.

The South Texas Fruit and Truck Growers' Association, consisting of affiliated local associations throughout south Texas and the Gulf coast country, the total membership of which is over 1,300, passed unanimously the following resolutions during their regular meeting at Edna, November 13 and 14:

Whereas the free garden seed received from Members of Congress at the expense of the General Government are usually of varieties known to be unsuited to the soil and climate of south Texas, and hence are worthless to us; and

Whereas these seed are sent to us by our Representatives in Congress under the mistaken idea that a favor is being conferred, which mistaken idea we hereby wish to correct; and

Whereas the expense to the General Government of obtaining seed and distributing them is a considerable item, and a serious economic waste wholly unjustified by the results obtained; and

Whereas the amount of money spent annually for seed distribution, if apportioned among the United States experiment stations, would be a thousand times more beneficial to each of us than as now spent, for it would engage more investigators to work on horticultural problems the solution of which would be of lasting value to every vegetable grower and to the whole State: Therefore be it

*Resolved*, That we, the South Texas Fruit and Truck Growers' Association, thank our Representatives in Congress for their past favors in the way of free seeds, but assure them that these favors were mistaken kindnesses on their part; that we condemn the practice of free distribution of garden seeds as an economic waste wholly unjustifiable; that in the future we will not accept from the Government free garden seeds; that we urge our Representatives, as a favor which we will heartily appreciate, to vote against the bill appropriating funds for the distributing of free garden seeds, and to use their influence to have the amount thus saved appropriated to the experiment stations of the country, whose valuable work is indorsed by all right-thinking men.

*Resolved further*, That a copy of these resolutions be sent each Congressional Representative from South Texas and to the press of the State with a request for its publication.

W. H. TRAVIS,

*Palacios, President.*

S. A. McHENRY,

*Santa Maria, Vice-President.*

C. A. WALTON,

*Victoria, Secretary-Treasurer.*

#### RESOLUTIONS HOUSTON (TEX.) TRUCK GROWERS.

Whereas the law creating the Department of Agriculture does not authorize the purchase and free distribution of common garden and field seeds, but only of new or rare foreign seeds or plants not in commerce of the United States; and

Whereas the free distribution of common garden and field seeds is class legislation, pure and simple, and therefore contrary to the letter and spirit of the Constitution of the United States; and

Whereas the purchase of common garden and field seeds for free distribution necessitates the expenditure of nearly \$250,000 annually, which amount is vastly in excess of the actual and practical value of said seeds; and

Whereas the aforesaid \$250,000 could be diverted into channels which would lead it to results more highly beneficial to the advancement of agriculture in the United States; and

Whereas the United States Post-Office Department suffers an annual loss of about \$250,000 by the free forwarding of said free seeds; and



Whereas by far the greater majority of the people generally, and all self-respecting farmers especially, not only do not appreciate, but resent, this paltry attempt of governmental benefaction: Therefore be it

*Resolved.* First. That we, the members of the Houston Truck Growers' Association, condemn the practice of free seed distribution for the reason above stated, and we respectfully solicit our honorable Representatives in the United States Congress to make every effort to bring about a cessation of the pernicious usage of free seed distribution.

Second. That the secretary of this association prepare one copy each of this resolution for publication in the Southern Shippers Guide and Texas Farm and Ranch; and further to mail one copy each to the Hon. John M. Moore and the Hon. C. A. Culbertson, members of the National House of Representatives and the United States Senate, respectively.

Third. That these resolutions be spread upon the record of this association.

Mr. BROOKS. What did the press of Texas do after that?

Mr. SMITH. That is part of what they did [indicating].

Mr. BROOKS. Have you any summary? Was it considerable or inconsiderable?

Mr. SMITH. In Texas?

Mr. BROOKS. Yes.

Mr. SMITH. There are a good many papers in Texas that I have never seen, of course, and it has only been a month ago that these resolutions were adopted; but I will say that I have never seen an article in a Texas newspaper in favor of this pumpkin-seed distribution, and I have a great many in that bunch, as you will see if you will be good enough to examine these exhibits.

Mr. CANDLER. The gentleman from Colorado suggests that he can not read all that, and he suggests that you summarize that.

Mr. BROOKS. It would save time if you gave the resolutions by sections or States.

Mr. SMITH. I have that, but I can not lay my hands on it.

Mr. BROOKS. Furnish it to the stenographer, so that it may go into the record and so that we may refer to it and handle it quickly.

Mr. SMITH. Mr. Field is from Texas. These resolutions were forwarded from the horticultural experiment station in Texas, the department of agriculture, the experiment station, and so forth, and they all agree on this thing. We had nothing to do with these. That is from your constituents.

If you gentlemen will allow me, I will present all this matter in tabulated form, giving a list of the newspapers which have opposed it editorially, a list of the newspapers which have written letters on this subject, a list of the organizations that have adopted resolutions, and perhaps the gist of those letters from the professors of the agricultural experiment station.

The CHAIRMAN. Do that by States, Mr. Smith.

Mr. SMITH. There will be considerable difficulty in doing that.

The CHAIRMAN. But that is the proper way to present it.

Mr. SMITH. It is quite a task.

The CHAIRMAN. Take the newspapers in each State, the farmers in each State, and the agricultural organizations in each State. Take it by States.

Mr. SMITH. Yes, sir.

Mr. HASKINS. This matter will not come up before the holidays, and we will hold the record open.

Mr. COCKS. I have a communication from the farmers' club in

my district, and I think it would be proper to have it go into the record at this hearing. I will give it to the stenographer.

The CHAIRMAN. State the substance of it.

Mr. COCKS. It is a resolution adopted by the Long Island Farmers' Club, an organization in my district, in opposition to the free distribution of garden seed. They state why they are opposed to it, and what they would be glad to have the money diverted for.

The CHAIRMAN. What do they want to have done with it?

Mr. COCKS. I will read the resolutions:

1. Whereas to increase the food from our lands it is necessary that improved varieties and new species be introduced.
2. Whereas to combat the increasing insect, fungous, and climatic difficulties, plant breeding is one of the best methods.
3. Whereas plant breeding and selection is too slow and too little rewarded by patent or otherwise to encourage private enterprise.
4. Whereas Government aid to agriculture has been of great benefit.
5. *Be it resolved*, That the Long Island Farmers' Club ask Congressman William W. Cocks to urge the United States Department of Agriculture to advance plant breeding, selection, and introduction for this region.

The CHAIRMAN. If there is no objection, it will go into the record. The communication presented by Mr. Cocks is as follows:

WESTBURY STATION, LONG ISLAND,  
December 10, 1906.

Hon. W. W. COCKS.

*Washington, D. C.*

DEAR SIR: For the hearing in opposition to the Congressional seed distribution, I present the following resolution of the Long Island Farmers' Club:

"Whereas to increase the food from our lands it is necessary that improved varieties and new species be introduced; and

"Whereas to combat the increasing insect, fungous, and climate difficulties, plant breeding is one of the best methods; and

"Whereas plant breeding and selection is too slow and too little rewarded by patent or otherwise to encourage private enterprise; and

"Whereas government aid to agriculture has been of great benefit: Therefore, be it

"*Resolved*, That the Long Island Farmers' Club ask Congressman William W. Cocks to urge the United States Department of Agriculture to advance plant breeding, selection, and introduction for this region."

The original intent and wording of the law should be carried out. The best way is to add to the appropriations for plant introduction and plant breeding by the Department of Agriculture and by the various State agricultural experiment stations.

The farmers who object to the present free-seed distribution can not be expected to appear, as it is a matter of small importance to each. Their objection should have far greater weight with you than the protest of the seedsmen. Therefore, the only way to decide is from principle. The present distribution is largely contrary to the principles of our Government.

The most valid claim is that it has increased the use of vegetables and improved the diet of the people. This educational value is slight and can be better accomplished by other and more direct methods, as by distributing seeds and instructions for growing and preparing vegetables where needed.

I have no interest in the protest of the seedsmen. I have been testing hundreds of species of trees and other plants from all regions of temperate climate. This nursery has been a testing ground for sixty years. Long Island has been the testing ground of foreign trees as long as any part of the country. The study results in this conclusion: Most European species are unhealthy here. Most of our improved fruits are from Europe and their cultivation entails great loss. Our native species are more healthy and from them have developed our grapes, gooseberries, raspberries, and blackberries, while the corresponding European species have failed here and succeeded in California. The species from Japan and eastern Asia are healthier than the European and

include many valuable food plants, the flavor of which are not always up to our standard.

Plant breeding and plant selection with all the above is necessary in each region. There is no private interest engaged in the work which objects to the Government doing it also.

Plant breeding is a move in the right direction. It is as certain as the work of Edison with electricity. Government scientists are now competent to do it. The people are ready to keep it going. The extravagant stories about Burbank and the Burbank jokes show that the subject is widely understood. Improvement of living things is the highest work the Department of Agriculture can do. It is hastening the evolution of civilization in the right direction. The Department and the State agricultural experiment stations have done good work in plant improvement, are well organized, have competent men, and can train more. Of course there will be difficulties. Results may be slow. Appropriations may be cut down. Results will be sure and great. For evidence, see the great improvement in the little work that has been done.

Sincerely,

HENRY HICKS, *President.*

Professor MASSEY. I would like to say one thing in regard to the way the farmers are thinking over this matter. Yesterday afternoon I addressed a convention of farmers in Adams County, Pa., near Gettysburg. I had not said a word to them about this free seed distribution, but as I was about to leave there I was asked, "Do you not think it would have some influence if we would pass a resolution in that regard?" I said, "I believe it would, but the hackman is at the door waiting to take me to the station, and I am bound to go to Washington to-night." Whether they did pass a resolution or not I do not know, but it was their own notion. The farmers all over the country are thinking about this matter, and men who are too independent to ask for the gift are anxious that Congress should do away with this thing and use this money as it should be used, for the benefit of agriculture.

The CHAIRMAN. We will now close the hearings, except that I would like the committee to remain for just a few minutes, that we may decide as to when we will hear Doctor Galloway.

Mr. CANDLER. I have here a couple of letters which give in a concise form information in regard to the amount expended for seeds and plants and the amount expended for salaries and other expenses in connection with this work.

The CHAIRMAN. Pick out the right point in the record where it should be inserted and put it in.

Mr. CANDLER. I think it would come in under the statement on my part that it gives information in reference to this matter.

The CHAIRMAN. Do you want it to follow any questions of yours?

Mr. CANDLER. No; I want it to go in right here. It explains itself, and gives in detail the expense and how it is allotted to each part of the work, the expense of each part of the work, and everything of that kind. It goes into detail with reference to the whole matter. One of these letters is from Doctor Galloway—two, I think, from him—and one from the Secretary himself. The one written by the Secretary was addressed to Mr. Tawney, a copy of which I have received.

The letters above referred to are as follows:

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF PLANT INDUSTRY,  
Washington, D. C., December 11, 1906.

HON. E. S. CANDLER, JR.,  
House of Representatives.

DEAR MR. CANDLER: I have yours of 10th instant in reference to information regarding the seed distribution. I expect to be present myself at the hearing to-morrow, Wednesday.

I can send no additional data to what was furnished last year, as there have been no specially new developments. Inclosed is copy of letter addressed to you last year; also of one sent to Mr. Tawney, signed by the honorable Secretary.

Special emphasis should be put on the fact that we are not spending \$242,000 for ordinary grain seed, but that the work is divided into three groups:

1. The securing, handling, and distributing of miscellaneous garden and flower seeds, grapevines, strawberry plants, ornamentals, etc., \$132,754.73.

2. The securing and distributing of comparatively new or little known kinds of various field and forage crop seeds, such as cotton, corn, alfalfa, etc.; the improvement of the same by breeding and selection, and the general upbuilding of agricultural industries through such work. For this work we expended last year \$72,385.27.

3. The introduction and dissemination of new and promising seeds and plants from foreign countries and the building up of new industries as the result of the work. Last year we expended \$37,780 for this work.

each of which is costing as mentioned under the above groups. I will be glad to explain verbally any further points in reference to the matter at any time.

Very truly, yours,

B. T. GALLOWAY, Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF PLANT INDUSTRY,  
Washington, March 10, 1906.

HON. E. S. CANDLER, JR.,  
House of Representatives, Washington, D. C.

DEAR MR. CANDLER: I have your letter of recent date asking for full information relative to the purchase and distribution of seeds and plants by the Department. In order to bring the facts together in concrete form I will take them up under certain heads, as suggested in your letter.

*Total amounts appropriated and expended for seeds and plants since 1865, when the Department was organized.*

Year.	Appropriated.	Expended.	Year.	Appropriated.	Expended.
1865	\$61,000.00	\$61,000.00	1886	\$100,000.00	\$99,980.24
1866	70,165.90	70,165.90	1887	100,000.00	99,998.37
1867	115,200.00	115,200.00	1888	103,000.00	102,587.55
1868	85,200.00	85,200.00	1889	104,200.00	104,168.73
1869	20,000.00	20,000.00	1890	104,200.00	104,174.55
1870	20,000.00	18,981.33	1891	105,400.00	105,090.94
1871	30,000.00	28,865.17	1892	150,000.00	104,920.35
1872	45,000.00	45,000.00	1892	105,400.00	104,920.35
1873	55,000.00	55,000.00	1893	135,400.00	134,908.27
1874	65,000.00	64,904.89	1894	135,400.00	119,719.76
1875	95,000.00	94,719.83	1895	165,400.00	120,545.15
1876	65,000.00	65,000.00	1896	135,400.00	126,476.87
1877	85,000.00	80,000.00	1897	150,000.00	142,822.52
1878	75,000.00	74,579.83	1898	130,000.00	121,870.38
1879	75,000.00	75,000.00	1899	130,000.00	127,150.52
1880	75,000.00	75,000.00	1900	130,000.00	118,561.53
1881	102,160.31	102,157.48	1901	170,000.00	149,615.49
1882	110,000.00	99,991.53	1902	270,500.00	266,614.12
1883	80,000.00	80,000.00	1903	270,000.00	253,193.70
1884	75,000.00	74,986.48	1904	290,000.00	284,254.21
1885	100,000.00	99,983.82	1905	290,000.00	280,530.30

\* For drought sufferers. Not used.

Total appropriations, \$4,767,526.21.

In the foregoing table we have set forth the total amount appropriated and spent for seeds and plants since 1865. The figures are self-explanatory, but it must be borne in mind that they cover all expenditures, and are not for miscellaneous garden and flower seeds alone.

#### HOW THE WORK HAS BEEN HANDLED.

The business of securing, handling, and sending out the seeds and plants of the Department has been conducted in various ways. For a time the Department did all the work; but as it grew the labor proposition became a serious one. The plan of letting out the work by contract was then resorted to, the contractor furnishing all seeds and labor, under the supervision of Department officers. The contract system was kept up until five years ago, when the whole work was turned over to the Bureau of Plant Industry. There were serious defects in the contract system, it being impracticable in this way to secure the very best seeds and for the Department to exercise proper supervision over it. When the work was turned over to the Bureau of Plant Industry, an effort was made to thoroughly systematize it and to put it on a practical business basis. To this end arrangements were made for the Department to secure all the seed, in this way exercising absolute control over the kinds of seed secured, their vitality, trueness to name, and other essential things.

#### KINDS OF WORK CARRIED ON.

The work of seed and plant distribution is now conducted by the Bureau of Plant Industry falls under three principal heads, viz:

(a) The securing, handling, and distributing of miscellaneous garden and flower seeds, grapevines, strawberry plants, etc.

(b) The securing and distribution of comparatively new or little-known kinds of various field and forage crop seeds—such as cotton, corn, alfalfa, etc.; the improvement of the same by breeding and selection, and the general upbuilding of agricultural industries through such work.

(c) The introduction and dissemination of new and promising seeds and plants from foreign countries and the building up of new industries as the result of this work.

#### (A) THE SECURING, HANDLING, AND DISTRIBUTING OF MISCELLANEOUS GARDEN AND FLOWER SEEDS, ETC.

This work as now conducted costs about two-thirds of the total amount appropriated. The Department has a thorough system of handling the entire work, the object being to secure the very best seeds obtainable and to be certain that they are true to type. A considerable portion of the seed sent out is grown for the Department out of selected stock. In order to keep thoroughly abreast of the times in these matters a number of testing stations have been established, where not only all of the miscellaneous varieties sent out are thoroughly tested to determine their trueness to type, but everything promising offered by seedsmen is also tested with a view to making use of it in future distributions. The Department has adopted the most rigid system of testing the vitality and purity of seeds. The seed laboratory of the Bureau of Plant Industry devotes a considerable part of its work to this subject, so that all seeds, from whatever source, are thoroughly tested before they are sent out. They are tested not only to determine their trueness to name and type, but as to their vitality and purity as well.

As to the value of this miscellaneous distribution of garden and flower seeds, it is very difficult to state what it may be. There is little doubt in my mind that such distribution accomplishes more or less good. Very few reports are received, however, and in the nature of the case it is impossible for us to use any but standard varieties in the distribution, because the quantities required make it impossible to use the rarer sorts. When this distribution was first undertaken a great many years ago there is no doubt that it accomplished much good, because at that time the seed industry was not as thoroughly organized as it is to-day. The practice of ordering through the mails from seed catalogues was not then in vogue, and it was extremely difficult for persons living in isolated localities to secure good garden seeds. This condition has changed, however, and to-day it is quite possible for anyone to buy garden seeds of the same varieties as we distribute.

(B) THE SECURING AND DISTRIBUTING OF COMPARATIVELY NEW OR LITTLE KNOWN VARIETIES OF FIELD AND FORAGE PLANT SEEDS AND THE IMPROVEMENT OF SAME BY BREEDING.

Under this head I may briefly refer to a class of work which I consider of great importance in the building up of agricultural industries in this country. As you know, special attention has been given during the last four or five years to the securing and distributing throughout the South of new and promising varieties of cotton. Oftentimes these cottons are secured from individual planters who have for a number of years been carefully selecting, and thus have bred a type somewhat better than is ordinarily found among growers. Our cotton experts and breeders have been on the lookout for all of these new and promising improvements, and every year we have sent out quantities of them for trial. In addition to this our men are, by their own work, securing desirable new types which are distributed as fast as developed. This is necessarily slow and costly work, but unquestionably is having a very important effect on the agricultural conditions of the South. We have many hundreds of reports from the new and improved cotton seeds that we have sent out, all showing their increased value over the ordinary kinds.

What has been said of cotton is also true of other crops, such as improved cowpeas—varieties that will resist wilt—improved melons, and improved forage crops. A special effort is being made in this direction in the matter of improving the forage crop conditions in all parts of the country, and our records will show, I think, that this work alone pays many times over the total amount appropriated for seeds and plants. As a special feature of this work may be mentioned the tobacco investigations which have been carried on from year to year, and which have had for their object the development of new types which will enable the growers of different sections to place upon the market the very highest class product. Work in Connecticut, Florida, and some of the other States has demonstrated the great value of these investigations, and this year for the first time the Department is in position to send out seeds of the specially bred types, the result of our investigations for the last three or four years.

(C) THE INTRODUCTION AND DISSEMINATION OF NEW AND PROMISING SEEDS AND PLANTS FROM FOREIGN COUNTRIES.

This work, conducted as a part of the general seed and plant investigations, is one of the most important branches of the Department. In the last five years a number of new things have been brought in and established as distinct industries. Among them may be mentioned the macaroni wheat, which was first introduced five or six years ago. The annual yield of this crop is now from 20,000,000 to 25,000,000 bushels, valued at from ten to fifteen million dollars. Another important introduction has been the Swedish oat, which has resulted in great improvement in the grain-growing conditions in the Northwest, one State, namely, Minnesota, estimating the value of this crop at over \$4,500,000. Other important crops introduced and established are new alfalfas, Japanese matting grass, date palms, etc. We import every year about \$5,000,000 worth of matting for floor covering, and of this amount \$2,000,000 practically represents the value of the raw material. This matting can be manufactured in the United States, and the rice lands of South Carolina, Texas, and Louisiana are well adapted to the cultivation of the grass. We have established gardens in South Carolina for the culture of this crop, and confidently anticipate that in a few years we will add this as one of the new industries of the South.

The whole work of the introduction of new varieties, whether found in the United States or imported from abroad, is so nearly connected that the distinction is really an arbitrary one. For the purpose of administrative economy the two are handled together, the seeds and plants received from foreign explorations being in most cases tested and introduced together with those developed in the United States. To carry on all of this work intelligently and to the best interests of the Department we have found it necessary to establish a number of testing gardens, through which we are trying to determine the crops best adapted to certain regions of the country. Thus we have a testing garden at Chico, Cal., where we are testing and distributing plants adapted to the temperate parts of the United States. Here are being tested and distributed new fruits for the Pacific coast, new forage crops for the drier regions of the United States, new cereals for different sections of the country, and various new crops particularly adapted to the northwest regions. At Amarillo, Tex., we have another station, where we are testing drought-resistant crops especially. These

include the newer durum wheats, sorghums, Kaffir corns, and crops of this nature. At San Antonio, Tex., we have another station, where we are testing crops for the semiarid region. We have a grain-testing station at McPherson, Kans., where new wheats and other grains are being tested.

All of this work is being paid for out of the general appropriation for seeds and plants. I consider the work under the two last heads, namely, the securing and distributing of new or little-known varieties of field, forage, and other seeds, plants, etc., found in this country, and the securing and distribution of seeds and plants, etc., from foreign countries of the utmost importance to American agriculture. I believe that the total amount now authorized for the entire work could very well be devoted to these problems.

I trust I have answered your inquiries fully, and for further and more detailed information would respectfully refer you to my executive report made to the honorable Secretary in 1905, in which is set forth in detail the various lines of investigation and in general in what manner the work is being applied in a practical way to the agricultural development of the country.

Very respectfully,

B. T. GALLOWAY, *Chief of Bureau.*

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
Washington, D. C., March 15, 1906.

Hon. J. A. TAWNEY,  
*House of Representatives, Washington, D. C.*

SIR: I have the honor to acknowledge the receipt of your favor of recent date requesting information in regard to the amount expended for seeds and plants and the amounts expended for salaries and other expenses connected with this work.

The lump appropriation for the purchase and distribution of seeds and plants for the current fiscal year is \$242,920. In the Book of Estimates of Appropriations for 1907, page 95, you will find a complete list of all salaries paid out of the lump fund, this data being completed up to September of the present fiscal year, when the estimates were prepared. I may say in this connection that every year we submit with our estimates a complete list of all salaries paid from lump sums, together with a full statement covering all appointments, promotions, and other changes made. This is done primarily and fundamentally for the reason that I desire to have the Committee on Agriculture thoroughly understand the innermost workings of the Department, especially in all matters pertaining to the payment of salaries where the same are not fixed by statute. You will understand that in work such as this Department is doing it is absolutely essential that the administrative head be given some leeway in the matter of paying the salaries of scientists. For the most part, these men are underpaid, and there is a great demand for their services outside. The Committee on Agriculture, I think, fully understands this matter and, in the light of the knowledge they have gained, have given me authority to exercise my judgment in meritorious cases, providing that in all such instances a full record is kept and reported to the committee each year.

In order that you may more intelligently understand the manner in which the seed work is handled, I may say that it naturally falls within three principal groups, namely:

(1) The securing, handling, and distributing of miscellaneous garden and flower seeds, grapevines, strawberry plants, ornamentals, etc.

(2) The securing and distributing of comparatively new or little-known kinds of various field and forage crop seeds, such as cotton, corn, alfalfa, etc.; the improvement of the same by breeding and selection and the general up-building of agricultural industries through such work.

(3) The introduction and dissemination of new and promising seeds and plants from foreign countries and the building up of new industries as the result of the work.

For purposes of economy, these three separate lines of work are handled, administratively, practically as one, and it is therefore difficult to draw hard and fast lines between them in the matter of expenses.

(1) *The securing, handling, and distributing of miscellaneous garden and flower seeds, etc.*—It will be seen from the tables accompanying this letter that

this work costs \$132,754.73, or approximately 55 per cent of the total amount appropriated. There is expended for seeds \$79,377.17, and for the packing, mailing, and general handling of the same, \$45,732.23, and for salaries \$7,645.33. The salaries for this part of the work constitute 5.7 per cent of the whole.

In this connection I would like to emphasize a very important point, namely, that in order to keep thoroughly abreast of the times in securing the very best seeds high-grade scientific men are essential and necessary.

We have established a number of testing stations where not only all of the miscellaneous varieties of seeds sent out are thoroughly tested to determine their truthness to type, but everything promising that is offered by seedsmen is also tested with a view to making use of it in future distributions. The Department has adopted a rigid system of testing the vitality and purity of the seeds. A special laboratory is devoted to this purpose, and this phase of the investigation constitutes a legitimate expense connected with the general work of seed distribution.

In my former letter I commented on the value of this miscellaneous distribution of garden and flower seeds, calling attention to the fact that it was difficult to state what such value might be. I also emphasized the fact that in my judgment the money thus expended could be put to better use in line with the class of work described under group 2. So long as the Department is required to do the work, however, it has been our effort to secure the very best seeds available, and to see that they were thoroughly tested and true to type, in order that their distribution might in a gradual cumulative way, encourage people throughout the country to demand the highest grade of seeds.

(2) *The securing and distributing of comparatively new or little-known kinds of various field and forage crop seeds and the improvement of same by breeding.*—This work is a legitimate part of the Congressional distribution, and to it we devote approximately \$72,385.27. All over this country there are to be found valuable forage crops, grains, fiber, and other plants which have been developed by private individuals and which are worthy of wider dissemination and trial. The Department has been making a special effort with such plants during the past four or five years, and has distributed many promising varieties. In order to determine the value of these plants and to act with judgment in their distribution and handling, the very best type of expert is required. These plants and seeds must first be discovered, thoroughly tested for some time, and then grown in considerable quantities for distribution. In this work we call in the assistance not only of the experts of this Department but experts of the State experiment stations as well.

Another important line of investigation in connection with this work is the development of new crops by breeding and selection. I consider this work requires the very highest type of agricultural skill, and it is accomplishing great good for the country. Many varieties of cotton of great value have been developed and distributed, and others are coming on from time to time as the work progresses. As a special feature of this kind of work, I might mention our efforts in the matter of encouraging the production of sugar-beet seed in this country. As you probably know, our sugar-beet growers have, ever since the industry was established here, been dependent on foreign countries for their seed. We do not always get the best seed, and for this reason the sugar content and tonnage of the beet crop has not developed as rapidly as might have been the case under other circumstances. We are now actively engaged in the growing of sugar-beet seed at a number of points in this country, doing the work in cooperation with careful growers and having our expert breeders on the ground to see that the sugar content and other desirable qualities of the beet are maintained. The seed so produced is tested by the sugar-beet factories, and the best types are distributed among individual growers, largely through Congressional requests. You will understand, I think, the necessity for having the very highest grade of service in this sort of work.

From the table you will see that we are spending annually for this work and for the work set forth under group 1 a total of \$205,140, of which \$33,643.17, or 16 per cent, is spent for salaries. This leaves \$171,496.83, or 84 per cent of the total, as the net amount to be expended for seeds, testing, and distributing them as outlined above.

(3) *The introduction and dissemination of new and promising seeds and plants from foreign countries.*—As a special feature of the seed and plant work, the introduction of new crops from foreign countries constitutes a most important line. The Committee on Agriculture in the House has from year to year gradually increased the amount authorized for this purpose until it now



aggregates \$37,780. At the same time that this increase has been made for work of this kind, the money spent for the ordinary garden and flower seed has been kept at practically the same figure by improved methods of handling the ordinary Congressional seeds and through the fact that the Department does all the work itself at a considerable saving over the old practice of letting it out entirely by contract. This saving, ranging in amount from \$15,000 to \$20,000 a year, depending upon the scarcity of the ordinary seeds, has been used in the development of lines of investigation under group 2 and also for foreign seed introduction work.

To intelligently handle the introduction of plants and seeds from foreign countries it requires first of all a corps of thoroughly trained agricultural explorers. These men must understand the conditions and needs in this country and be able to use such knowledge to advantage when studying crops in foreign countries. By the intelligent application of this general policy we have during the last six or eight years introduced a number of crops which are adding considerably to the wealth of the country.

Perhaps the most striking example of this is to be found in the introduction of durum or macaroni wheats. One of our explorers spent considerable time in Russia studying the conditions and the varieties of cereals grown there. He found several types of durum or hard wheats which would grow in regions of little rainfall. Five years ago the first introduction of these wheats was made, and now the annual production is from 20,000,000 to 25,000,000 bushels, having a value of from \$10,000,000 to \$15,000,000. Another important introduction along this same line has been in connection with the introduction of new types of rice for the Southern States. This work was taken up six or eight years ago at a time when the industry was at a comparatively low ebb owing to the fact that the rices grown in the South were too soft. An expert explorer was sent to Japan, China, and India, and other rice-growing countries, bringing back types of rice suitable to the conditions in the South, and a great impetus to the industry resulted.

We are introducing, testing, and disseminating cereals for various parts of the United States, forage crops for the dry and semiarid regions, forage crops for alkali soils, grasses and other crops for the South, fruits of various kinds for all parts of the country, and many special crops which have promise of developing new industries. One of these is the Japanese matting grass, which we are now growing in a number of the Southern States and which gives promise of being successful. We import about \$5,000,000 worth of matting and practically all of this could be made in this country and sold at a profit if the growing of the Japanese grass can be made successful.

To properly handle such subjects we have a number of testing stations where crops when first brought in are grown for a time, and if found valuable are propagated extensively and distributed. The men in charge of these stations must be experts, and must be thoroughly familiar with the propagation of plants and the necessary requirements for making such plants successful in other regions.

This statement in reference to the manner in which the work is handled seems desirable and necessary, in order that a better understanding may be had of the accompanying summarized table of expenditures.

Very respectfully,

JAMES WILSON, *Secretary*.

*Memorandum of expenditures from the appropriation for the purchase and distribution of valuable seeds, 1906, as shown by financial statements, to March 12, and estimates to June 30, 1906.*

(1) THE SECURING, HANDLING, AND DISTRIBUTION OF MISCELLANEOUS GARDEN AND FLOWER SEEDS, ETC.

Cost of seed:

Congressional vegetable and flower seed only-----	\$63,072.67
Other seeds and plants entering into regular quotas, such as cotton, tobacco, lawn grass, etc-----	6,915.00
Seeds and orange trees not in regular quotas, but purchased for distribution through Congressmen-----	3,685.00
Plants, chiefly ornamental, not in regular quotas, but to be distributed through Congressmen-----	5,704.50
	<hr/> \$79,377.17

Contract for all work connected with the packeting and mailing of 35,815,000 packets of miscellaneous vegetable and flower seed, including making the packets, printing and filling the same, putting on franks, assembling and filling packages with packets, at contract price of \$1 per 1,000 packets-----	\$36, 000. 00
Salaries of superintendent, bookkeepers, and frank counters-----	7, 645. 33
Trial grounds to test and determine the quality of seeds-----	2, 540. 00
Miscellaneous, including freight on all seeds, rent, gas and electric lighting, fuel, etc-----	7, 192. 23
Total-----	132, 754. 73

(2) THE SECURING AND DISTRIBUTING OF COMPARATIVELY NEW OR LITTLE-KNOWN KINDS OF VARIOUS FIELD AND FORAGE CROP SEEDS AND THE IMPROVEMENT OF SAME BY BREEDING.

Purchase of seeds, expense of experimental work, including travel for inspection and supervision-----	18, 450. 33
Maintenance of propagating houses, trial grounds, cooperative work with State experiment stations and private growers throughout the country in establishing new plant industries, and necessary expenses connected therewith of a miscellaneous character-----	11, 049. 00
Salaries:	
Botanist in charge of entire seed work and assistants-----	\$9, 272. 17
Experiments and laborers required in connection with seeds and plants for experimental work-----	8, 419. 67
Experts and gardeners for propagating work, trial grounds, and cooperative investigations-----	8, 306. 00
	25, 997. 84
Miscellaneous, including fuel, gas and electric lighting, stationery, and general office expenses-----	10, 394. 33
Balance, not allotted to date, but will probably be required to meet unforeseen expenses before the end of the fiscal year-----	6, 493. 77
Total-----	72, 385. 27
Total (1) and (2), domestic seed work-----	205, 140. 00

(3) THE INTRODUCTION AND DISSEMINATION OF NEW AND PROMISING SEEDS AND PLANTS FROM FOREIGN COUNTRIES.

Purchase of seeds and plants in foreign countries, including travel expenses of explorers and special agents in connection therewith-----	16, 312. 31
Salaries of explorers, experts, special agents, clerks, and laborers in connection with foreign introductions-----	13, 049. 00
Preliminary tests of foreign introductions in cooperation with State experiment stations and private growers-----	3, 176. 00
Miscellaneous, including telegraph, express, storage, packing, etc-----	1, 000. 00
Balance not yet specifically allotted, but which will probably be required for unforeseen expenses-----	4, 242. 69
Total foreign seed introductions-----	37, 780. 00
Total appropriation for seed and plant introduction and distribution-----	242, 920. 00

*Summary of principal items of expense.*

	Amount.	Per cent of total.
Cost of seeds and plants, including freight.....	\$118,767.16	48.8
Packeting, assembling, and mailing under contract.....	36,000.00	14.8
Salaries: Botanist in charge, explorers, experts, special agents, clerks, gardeners, laborers, messengers, etc.....	46,692.17	19.2
Testing, trial grounds, cooperative tests of new plants with experiment stations and private growers, including travel expenses.....	16,765.00	6.9
Miscellaneous, including telegraph, telephone, fuel, gas and electric lighting, stationery, and general office expenses.....	13,959.21	5.8
Balance yet to be allotted.....	10,736.46	4.5
<b>Total.....</b>	<b>242,920.00</b>	<b>100</b>

From the foregoing it will be seen that approximately 49 per cent of the total appropriation is actually expended for the purchase of seeds, 15 per cent for packeting and mailing, 19 per cent for salaries, 7 per cent for testing and trial work, and 6 per cent for miscellaneous and office expenses, leaving a balance of 4 per cent for emergencies. The combined cost of all salaries, miscellaneous and general office expenses, including telegraph, amounts to \$60,651.88, or approximately 25 per cent of the total, leaving \$182,268.12, or 75 per cent of the entire appropriation, as the net amount to be expended for the purchase of seeds, testing, and distribution.

In addition to the foregoing attention should be called to the appropriation for salaries on the statutory roll of the Bureau of Plant Industry (Estimates of Appropriations, 1907, p. 87). The entire appropriation under this item is \$162,480, of which \$42,040, or approximately 25 per cent, is chargeable to the seed work. These salaries were formerly paid from the lump fund, but last year the Committee on Agriculture decided to make them statutory. Following is a list of all these clerks, together with their salaries and the line of work to which they are directly chargeable.

Number and designation.	Rate.	Amount.
(1) The securing, handling, and distribution of miscellaneous garden and flower seeds, etc.:		
2 clerks, class 4.....	\$1,800	\$3,600
1 clerk, class 3.....	1,600	1,600
1 clerk, class 2.....	1,400	1,400
2 clerks, class 1.....	1,200	2,400
3 clerks.....	1,000	3,000
1 clerk.....	840	840
5 clerks.....	720	3,600
1 clerk.....	600	600
1 plant packer.....	660	660
1 skilled laborer.....	660	660
2 messengers.....	480	960
<b>Total.....</b>		<b>19,320</b>
(2) The securing and distributing of comparatively new or little-known kinds of various field and forage crop seeds and the improvement of same by breeding:		
1 clerk, class 2.....	1,400	1,400
3 clerks, class 1.....	1,200	3,600
2 clerks.....	1,000	2,000
1 clerk.....	900	900
3 clerks.....	840	2,520
5 clerks.....	720	3,600
1 clerk.....	600	600
1 gardener.....	900	900
Do.....	600	600
1 skilled laborer.....	660	660
4 skilled laborers.....	600	2,400
1 messenger boy.....	360	360
<b>Total.....</b>		<b>19,540</b>
(3) The introduction and dissemination of new and promising seeds and plants from foreign countries:		
1 clerk, class 1.....	1,200	1,200
1 clerk.....	720	720
1 gardener.....	660	660
1 skilled laborer.....	600	600
<b>Total.....</b>		<b>3,180</b>
<b>Total statutory salaries connected with seed work.....</b>		<b>42,040</b>

From the foregoing it appears that the total cost of the seed work, including the regular appropriation and the amount expended for statutory salaries, is \$284,960, or \$5,040 less than the amount appropriated for the same purpose last year. The combined lump fund and statutory salaries this year amount to \$88,732.17, or approximately 31 per cent of the entire cost of the seed work.

The CHAIRMAN. If the committee will wait for a few minutes we will decide whether we can hear Doctor Galloway, so that it can go in the record. It ought to be to-morrow or next day.

Mr. SMITH. May I make a remark about the requests that are made for these seeds? The matter has been called to my attention by a member of the committee. As I understand it, this committee handles the agricultural appropriation bill and makes this appropriation for the benefit of the farmer. That is the class that is supposed to get the benefit, and not the mechanics, mill workers, or school children, or anybody else but the farmer; at least ostensibly. Last year Mr. Gaines presented a list of some farmers from his district who had written to him for these seeds. I took the trouble to analyze that list. All but one of the letters that were presented last year, at least that I saw in the House debates, were presented by Mr. Gaines.

Here are some of the farmers Mr. Gaines produces—

Mr. HASKINS. You mean John Wesley Gaines? We have two gentlemen of that name.

Mr. SMITH. Of course, it is understood that I mean John Wesley Gaines. Mr. Gaines is a very good friend of mine, but we differ on this. Here are some of the farmers demanding free seeds from Mr. Gaines [quoting]:

"L. X. Nance, chief operator N. C. and L. R. R. Mr. Nance submits the names of six other farmers, who prove to be Mrs. A. J. Nance, Mrs. L. M. Nance, Mrs. W. P. Dans, Mrs. E. M. Davis, and Mrs. M. D. Nance, all of them residents of towns. Apparently Farmer Nance was looking out for the family—and permit me to call your attention to a highly significant line in his letter. 'Remember me,' says Farmer Nance, 'as your supporter and admirer.' Doubtless the family secured their seeds.

"Another 'farmer' is Miss Fanny Battle, secretary of the Union Charities, of Nashville; another, Miss Mary Woods, secretary of the Centennial Club, of Nashville; another is W. M. Green, of Nashville, who says his 'little granddaughter'—presumably also a 'farmer'—wants some seeds. Miss Hulda Lyle, of Hackberry, Tenn., is still another."

I am quoting from my statement before the Senate committee last session.

"But a 'peach' comes in from John D. Parks, of Port Royal. 'I have lots of friends,' says Farmer Parks, 'who have fed me through our great tobacco fight, and that is one of the main reasons I am so anxious about getting a big lot of seed of all kinds for them.' Mr. Chairman, is it exactly a 'square deal' that the Government should be called upon to pay Farmer Parks's board bill in seeds?"

I do not think so.

"But listen. Parks wrote again, and he puts up an awful howl. He had received his quota, but it was not enough. 'I did not have half to give near all those who had been feeding me and my faithful little horse'—you see he rings in a feed bill for his horse this time—

'through our great tobacco fight so long. And now I am bothered no little, for those who have been so faithful to me'—'to me,' mark you—'to be expecting something from me and not be able to furnish them.' Apparently the idea of buying the seeds himself did not occur to Parks."

And finally he says:

"When I noticed 38,000,000 packages of seeds would be subject to the order of Representatives for distribution to begin in December,' continues Farmer Parks, 'I felt encouraged to feel like I would make lots of my good lady friends feel like I was trying to help them, and especially show in efforts and actions I had appreciated what they had done for me.'"

Farmer H. C. Singleton, of Nashville; a Mrs. Morris, a Miss Brown, a Mrs. J. W. Hagerwood; Professor Daniel, of Vanderbilt University; Mrs. Castleman; a Mr. Beaumont, whose wife "wishes to have a good garden," and many other ladies and gentlemen complete the list of "farmers."

There is one more letter that Mr. Gaines presented. It is from Mrs. W. F. Jones, of Antioch, Tenn. She says:

I got your free seed last year and they did mighty well, and I thank you for them, and if you have any beet seed to give away I would be thankful if you would send me a paper of the blood-turnip beet seed. I haven't got any and can't get any; and if you have them, send a paper of four-o'clock seed. I am a poor old woman, and have one arm broken, and can't work to buy any seed. Send the seed, if you please, and oblige a friend. If you send the seed, direct this way: Mrs. W. F. Jones, Antioch, Tenn., R. F. D. No. 16, and oblige a friend, Mrs. W. F. Jones; and if you have them to give away please send them as soon as you can.

What happened to that poor woman's request? Mr. Parks apparently got a lot of seed, because he speaks of having had a lot, but not half enough to go around and pay for his horse's feed bill. So he writes and gets another lot. So this poor old woman, that had one arm broken, writes to the Congressman, and what did she get? He writes back and says:

I have done the best I can to get you these seeds, but unfortunately my quota of seeds is exhausted and I can not send what you ask.

Mr. LAMB. That is very frequently the case. I have 12,000, and 60,000 people to send them to.

Mr. SMITH. The old lady did not get any. The seeds had gone to feed Farmer Parks and his faithful little horse.

Mr. LAMB. You can not laugh a case out of court.

Mr. CANDLER. Have you Mr. Gaines's letter in reply to Mrs. Jones?

Mr. SMITH. Not in this book. I thought I had it.

Mr. CANDLER. Will you incorporate it at this point?

Mr. SMITH. Certainly, sir.

*Reply of Hon. J. W. Gaines to Mrs. Jones's letter quoted above.*

MARCH 10, 1906.

MRS. W. F. JONES,

*R. F. D. No. 16, Antioch, Tenn.*

DEAR MADAM: Your letter of recent date to hand, and I regret to say that I am entirely out of both garden and flower seed. I have, however, written to the Département of Agriculture requesting them if possible to send you some seed, which I sincerely trust they can do.

Am sorry your letter did not reach me before all of mine were mailed out.

With best wishes, I am, yours, very respectfully,

JOHN W. GAINES.

MR. SMITH. In this connection permit me to say that when I called the attention of the seed dealers to Mrs. Jones's request they arranged to send her all the seed she could use. Mr. Bolgiano had charge of the matter and can corroborate me.

MR. BOLGIANO. Yes; we sent her the seed she wanted, and stand ready to respond to all such requests.

MR. SMITH. I might add that I especially invited my friend, Mr. Gaines, to be present at these hearings and discuss the matter with us, but he is not in the best of health, I regret to say.

MR. CANDLER. How many letters did you say he received, 153?

MR. SMITH. No, sir. I said that of all the letters that were presented by the 153 Members of Congress voting for this appropriation from farmers, I think all but one, incorporated in the record, were from Mr. Gaines.

MR. CANDLER. Mr. Mann, of Illinois, brought into the House and laid on his desk, I have heard some say, 8,000 requests. I do not know whether that was true or not, but as big a package as that [indicating].

MR. SMITH. It has been stated that Mr. Mann wrote to every man in his district and suggested to them to write a letter to him asking for the free seed so that he could exhibit them on the floor of the House. I do not know how true this is, except it has been stated in the press and Mr. Mann has not denied it as far as I know.

MR. CANDLER. I do not know how he got them.

MR. SMITH. He was attacked in the Chicago papers for that. A copy of the letter was sent out broadcast throughout the district to every man, woman, and child, according to this article. It has never been denied. I do not think he denied it.

MR. CROMER. He lives in a great farming community, too.

MR. SMITH. In the heart of Chicago.

THE CHAIRMAN. I think we have heard enough. The hearing is closed.

MR. HASKINS. From those letters that you read do you deduce that the interests of the farmers of the country have been advanced at all?

MR. SMITH. I have never heard a word from a farmer of any kind—

MR. HASKINS. I mean those letters you read there from old ladies. Are the farmers being benefited by that?

MR. SMITH. No, sir; on the contrary, they say it means nothing to them.

The committee (at 1.15 o'clock p. m.) went into executive session and subsequently adjourned.

# EXHIBIT A.

[Extract from hearing before Senate Committee on Agriculture.]

## AGRICULTURAL COLLEGES.

*Statement of Dr. H. C. White, of the University of Georgia.*

Doctor WHITE. Of course, I think my individual judgment was made up long years ago that the Government might put that money to much better use than in the distribution of the seeds. Now, I try to maintain that as an individual opinion.

Senator PERKINS. It is based upon your observation and your connection with the work with which you are engaged and intercourse with the farmers of the country?

Doctor WHITE. This is rather a delicate matter, but I believe if you take the intelligent farmers of the State they are almost unanimously either in opposition to the free distribution of seeds, or certainly they would not advocate it. Now, if I were to make that statement publicly it might stand as a reflection upon the intelligence of a great many farmers, and I would not like to do that. There are a great many men who can not be called unintelligent and who yet hear nothing one way or the other on this subject. I do not doubt that there are a great many people who work small farms, and all that sort of thing, who would apply for free seeds if they were to be had; but if you come to the sound public intelligent opinion on the subject I am quite prepared to say that it is as strong in Georgia as it is in any other State, and that they would be glad to see the free-seed distribution done away.

# EXHIBIT B.

*Varieties of seed distributed, 1906 (Department of Agriculture list), together with dates of introduction as shown by seed catalogues.*

Seed.	Kind.	Variety.	When introduced.
Beans	Dwarf	Refuge Wax	Prior to 1893.
Do	do	Extra Early Refuge	Prior to 1890.
Do	do	Extra Early Valentine	Prior to 1888.
Do	do	Extra Early Red Valentine	Prior to 1880.
Do	do	Bountiful	1899.
Do	Pole	White Creaseback	1886.
Do	do	Kentucky Wonder	1884.
Beet		Bastian's	Prior to 1880.
Do		Columbia	1892.
Do		Eclipse	Prior to 1885.
Do		Edmand's Early	1887.
Do		Edmand's Turnip	1887.
Do		Bassano	1880.
Do		Early Blood Turnip	1880.
Do		Crosby's Egyptian	1896.
Do		Long Smoot (dark) Blood	1880.
Do		Detroit	Prior to 1898.
Do		Dewing's	Prior to 1880.
Do		Early Arlington	Prior to 1891.
Cabbage		Early Jersey Wakefield	Prior to 1879.
Do		Flat Dutch	Do.
Carrot		Danvers	1881.
Do		Chantenay	1888.
Do		Oxheart	1884.
Do		Early Scarlet Horn	Prior to 1870.
Do		Improved Long Orange	Prior to 1868.
Collards		Georgia	Prior to 1879.
Corn		Crosby's Early	Do.

*Varieties of seed distributed, 1906 (Department of Agriculture list), together with dates of introduction as shown by seed catalogues—Continued.*

Seed.	Kind.	Variety.	When introduced.
<b>Corn</b> .....		Zigzag Evergreen	
Do.....		Stowell's Evergreen	About 1860.
Do.....		Hickox Improved	Prior to 1880.
Do.....		Old Colony	Prior to 1885.
Do.....		Early Evergreen	Prior to 1879.
Do.....		Extra Early Minnesota	Do.
Do.....		Moore's Concord	1882.
Do.....		Kendal's Giant Early	1899.
Do.....		Champion Early	Prior to 1899.
Do.....		Shaker's Early	Prior to 1886.
<b>Cucumber</b>		Cumberland	1902.
Do.....		Extra Early Russian	1880.
Do.....		Green Prolific	1880.
Do.....		Arlington White Spine	1880.
<b>Endive</b>		White Curled	1880.
Do.....		Moss Curled	1880.
Do.....		Broad-leaved Batavia	1880.
<b>Kale</b>		Triple Curled	
Do.....		Dwarf Green Curled	Prior to 1860.
Do.....		Moss Curled	About 1880.
Do.....		Dwarf Curled Siberian	Prior to 1860.
<b>Lettuce</b>		Grand Rapids	1891.
Do.....		Prize Head	1881.
Do.....		Big Boston	1890.
Do.....		Passion	About 1870.
Do.....		Deacon	1879.
Do.....		Denver Market	1870.
Do.....		Philadelphia Butter	1892.
Do.....		California Cream Butter	1888.
Do.....		American Gathering	About 1870.
Do.....		Tilton's White Star	1889.
Do.....		All Seasons	1897.
Do.....		Chartier	About 1891.
<b>Muskmelon</b>		Paul Rose	1899.
Do.....		Emerald Gem	1886.
Do.....		Defender	1902.
Do.....		Bay View	1880.
Do.....		Rockford	1881.
<b>Mustard</b>		Ostrich Plume	1898.
Do.....		Fordhook Fancy	1901.
<b>Okra</b>		New Dwarf Green	1880.
Do.....		New White Velvet	1887.
Do.....		Perkins's Long Podded	1901.
		Moss Curled	1881.
		Double Curled	1881.
<b>Paraleya</b> .....		Champion Moss Curled	1881.
		Extra Dwarf Curled	1893.
<b>Parsnip</b>		Guernsey	
Do.....		Hollow Crown	Prior to 1868.
Do.....		Long Smooth	Prior to 1860.
<b>Peas</b>			1880.
Do.....		Horsford's Market Garden	Prior to 1888.
Do.....		Advancer	Prior to 1868.
Do.....		Champion of England	Do.
Do.....		Admiral	1891.
Do.....		Extra Early	1880.
Do.....		Abundance	1884.
Do.....		Everbearing	1884.
Do.....		Dwarf Champion	1904.
Do.....		First and Best	Prior to 1868.
<b>Radish</b>		Half Long Scarlet	1888.
Do.....		Cincinnati Market	1896.
Do.....		French Breakfast	Prior to 1870.
Do.....		Vick's Scarlet Globe	1903.
Do.....		Chartier	Prior to 1886.
Do.....		Scarlet Globe	About 1886.
Do.....		Early Scarlet Turnip	Prior to 1870.
Do.....		Long Scarlet Short Top	Do.
Do.....		Wood's Early Frame	Do.
Do.....		Icicle	1900.
Do.....		Scarlet Olive Shaped	Prior to 1870.
Do.....		Extra Early Scarlet Turnip	1885.
Do.....		Long Scarlet	Prior to 1870.
<b>Squash</b>		Early White Bush Scarlet	Prior to 1878.
Do.....		Mammoth White Bush Scallop	1889.
Do.....		Early Yellow Sum Crookneck	Prior to 1878.
Do.....		Golden Custard	1889.
Do.....		Early Yellow Bush Scallop	Prior to 1878.
Do.....		Dreer's White Bush	1900.
Do.....		Yellow Bush	1881.
<b>Tomato</b>		Stone	1892.

¶ Different strains of the same variety offered by the trade at least forty years.



*Varieties of seed distributed, 1906 (Department of Agriculture list), together with dates of introduction as shown by seed catalogues—Continued.*

Seed.	Kind.	Variety.	When introduced.
Tomato.....		Perfection.....	1881.
Do.....		Favorite.....	1883.
Do.....		Matchless.....	1889.
Do.....		Early Michigan.....	About 1895.
Turnip.....		Early Flat Dutch.....	Prior to 1868.
Do.....		Purple Top White Globe.....	Prior to 1880.
Watermelon.....		Phinney's Early.....	1880.
Do.....		Dark Icing.....	1881.
Do.....		Harris's Earliest.....	1900.
Do.....		Mountain Sweet.....	1880.
Do.....		Mammoth Ironclad.....	1884.
Do.....		Kolb's Gem.....	Prior to 1885.
Do.....		Jordan's Gray Monarch.....	1888.
Do.....		Fordhook Early.....	1890.
Do.....		Arkansas Traveler.....	About 1892.
Do.....		Iceberg.....	1902.
Do.....		Pride of Georgia.....	1886.
Do.....		Peerless.....	1880.
Do.....		Sweetheart.....	1895.
Do.....		1,000 Pound Dixies.....	1892.

#### EXHIBIT C.

*Tabulation of the resolutions, letters, editorials, and other matter containing the present method of distributing free seeds, presented to the House Committee on Agriculture Thursday, December 13, arranged by States.*

#### ALABAMA.

##### Letters:

R. S. Mackintosh, State horticulturist.  
 E. Mead Wilcox, botanist agricultural experiment station.  
 J. F. Duggar, director Alabama Polytechnic Institute.  
 Editor the Dixie Home.

##### Editorials and news items:

Montgomery Journal.  
 Mobile Register.  
 Montgomery Advertiser.  
 Montgomery Times.  
 Birmingham Ledger.  
 Opelika News.  
 Birmingham News.

#### ARKANSAS.

##### Letters:

Ernest Walker, horticulturist experiment station.

##### Editorial and news items:

Arkansas Democrat.

#### CALIFORNIA.

##### Resolutions:

Santa Barbara Horticultural Society.  
 State Horticultural Society.

##### Letters:

Emily L. Burnham, secretary State Grange.  
 J. W. Webb, lecturer State Grange.  
 G. N. Whitaker, secretary board of horticultural commission Sonoma County.  
 E. W. Nilgard, agricultural experiment station.  
 John Isaac, secretary State commissioners horticulture.  
 E. J. Wilkinson, Berkeley (inclosing resolutions State Horticultural Society).

##### Letters:

Editor Rural Californian (M. G. Heintz).  
 Editor the California Fruit Grower (H. C. Rowley).  
 Editor Town and Country Journal (W. G. Bonham).

**Editorial and news items:**

California Fruit Grower, San Francisco.  
Pacific Fruit World, San Francisco.  
Poultry Journal, Petaluma.  
Cooperative Journal, Oakland.  
Oakland Herald.  
Eureka Daily Standard.  
Los Angeles Herald.  
San Francisco Call.  
San Francisco Chronicle.  
Cloverdale Revielle.  
Fresno Republican.  
Los Angeles Times.  
San Jose Mercury.  
Riverside Enterprise.  
Stockton Independent.  
Los Angeles News.  
San Francisco Bulletin.

**COLORADO.****Letters:**

C. P. Gillette, professor State Agricultural College.  
William P. Headden, State Agricultural College.  
W. H. Olin.  
H. S. Groves, editor Ranch and Range.  
Editor The Field and Farm.

**Editorial and news items:**

Leadville Herald-Democrat.  
Colorado Springs Gazette.  
Pueblo Star-Journal.  
Telluride Journal.  
Denver Times.  
Colorado Springs Telegraph.  
Irrigation, Denver.

**CONNECTICUT.****Resolutions:**

East Lyme Grange, No. 157.  
Rippowam Grange, No. 145.  
Local Grange 153, Bridgewater.  
Ellington Grange, Ellington.

**Letters:**

Farmer Printing and Publishing Company, New Haven.  
James F. Brown, secretary State board of agriculture.  
Publishers Connecticut Farmer, New Haven.  
C. M. Gallup, Brooklyn (Farmer).

**Editorials and news items:**

The Farmer, Bridgeport.  
Meriden Record.  
Ansonia Sentinel.  
Hartford Courant.  
Hartford Courier.  
New Haven Register.  
New Britain Herald.  
New Haven Palladium.  
The Day, New London.  
Union, New Haven.  
Republican, Waterbury.  
Republican, Bridgeport.  
Norwich Telegraph.  
Bridgeport Standard.  
Norwich Record.  
Hartford Times.  
Bridgeport Telegram.  
Waterbury Democrat.  
Waterbury American.  
Willimantic Chronicle.  
New Haven Leader.  
The Hour, Norwalk.

DELAWARE.

Resolutions:

Sunnyside Grange No. 7, Bridgeville.  
Capital Grange No. 18, Dover.

Letters:

Wesley Webb, secretary State Grange.  
J. Harvey Whitcman, attorney, Wilmington.

GEORGIA.

Letters:

R. J. Redding, director agricultural experiment station.  
Harvie Jordan, president Southern Cotton Growers' Association.  
F. J. Merriam, editor Southern Ruralist, Atlanta.  
J. Lawrence, editor Farmer and Stockman.  
Douglas Glessner, editor Griffin News and Sun.  
George Gilmore, Wartham.

Editorials and news items:

The Nut Grower, Poulan.  
Augusta Herald.  
Macon Telegraph.  
Atlanta News.  
Atlanta Constitution.  
Columbus Ledger.  
Savannah News.  
Savannah Press.  
Atlanta Journal.

Testimony Dr. H. C. White, University of Georgia, before Senate Committee on Agriculture (exhibit).

IDAHO.

Letter:

H. T. French, director agricultural experiment station.

Editorial:

Gem State Rural.

ILLINOIS.

Resolutions:

Illinois State Grange.  
Union Grange, No. 811, Rockford.  
Farmers' petitions, late Representative Hitt's district.

Letters:

Edmund J. James, president Illinois University.  
E. Davenport, director agricultural experiment station.  
T. J. Burrill, University of Illinois.  
Hubert Shearer, editor Farm, Field and Fireside, Chicago.  
C. P. Reynolds, editor Prairie Farmer, Chicago.  
Editor Maxwell's Talisman, Chicago.  
C. Ham, editor Farm Life, Chicago.  
W. A. Baldwin, editor Joliet Daily News.  
Daily National Live Stock Reporter.  
Charles F. Mills, editor Farm Home.

Editorial and news items:

American Florist Exchange, Chicago.  
Farm Life, Chicago.  
Farm, Field and Fireside, Chicago.  
Farmers' Review, Chicago (also letter).  
Monmouth Review.  
Kewanee Star-Courier.  
Fruit Growers' Journal, Cobden.  
Inland Farmer, Chicago.  
Prairie Farmer, Chicago.  
Farmers' Call, Quincy.  
Flushing Journal.  
Elgin Press.  
Springfield State Register.  
Rockford Republic.  
Chicago Post.

## Editorial and news items—Continued.

Cairo Bulletin.  
 Joliet News.  
 Pontiac Leader.  
 Peoria Herald-Transcript.  
 Danville Press.  
 Chicago Record-Herald.  
 Rochelle Herald.  
 Belleville Advocate.  
 Chicago Tribune.  
 Peoria Evening Star.  
 Bloomington Pantagraph.  
 Chicago Daily News.  
 Quincy Journal.  
 Aurora News.  
 Bloomington Bulletin.  
 Streator Free Press.  
 Moline Review-Dispatch.  
 Springfield Journal.  
 Chicago Inter Ocean.  
 Breeders' Gazette, Chicago.

## INDIANA.

## Resolutions:

State Horticultural Society.  
 Rush County Farmers' Institute.  
 Dubois County Farmers' Institute.  
 Warrick County Farmers' Institute.

## Letters:

W. C. Latta, professor agricultural experiment station.  
 William E. Osborne, farmer, Lafayette.  
 D. M. Litchlyder, president Dubois County Farmers' Institute.  
 John E. Baker, Booneville, Warrick County Farmers' Institute.  
 Rush County Farmers' Institute.  
 Guide Publishing Company, Huntington.  
 American Farmer Company, Indianapolis.  
 Inland Poultry Journal, Indianapolis.  
 Progressive Country Life, Rockville.  
 Editor Crawfordsville Journal.  
 W. H. Cheny, New Albany.  
 H. W. Brown, New Albany.

## Editorial and news items:

Arboriculture, Connersville.  
 Progressive Country Life, Rockville.  
 Up-to-Date Farming, Indianapolis.  
 Inland Poultry Journal, Indianapolis.  
 Lafayette Courier.  
 South Bend Tribune.  
 Hartford City News.  
 Muncie Star.  
 Elkhart Truth.  
 Huntington Herald.  
 Madison Courier.  
 Agricultural Epitomist, Spencer.  
 Indiana Farmer, Indianapolis.  
 Fort Wayne Journal.  
 Fort Wayne News.  
 Evansville Courier.  
 Richmond Sun-Telegram.  
 Indianapolis Star.  
 Terre Haute Star.  
 Fort Wayne Sentinel.  
 Anderson Herald.

## IOWA.

**Letters:**

P. G. Holden, superintendent department agricultural extension, Iowa College.  
 W. H. Stevenson, professor department of soils, Iowa College.  
 Louis G. Michael, chemist, agricultural experiment station.  
 George P. Hardwick, secretary Farmers' Ind. Union, Hancock County.  
 Harry W. Law, secretary Scott County Farmers' Institute.  
 W. A. Wickham, Tipton.  
 D. Z. Berry, Indianola.  
 G. A. Ivins, board of directors State Horticultural Society.  
 Wesley Greene, secretary State Horticultural Society.  
 J. F. Widman, editor McGregor News.  
 C. E. Faville, Successful Farming, Des Moines.  
 Kimball's Dairy Farmer, Waterloo.  
 Fruitman and Gardener, Mount Vernon (telegram).  
 Ralph Robinson, editor Newton Journal.  
 Dunlevy Brothers, publishers Lansing Journal.  
 G. Albert Lindean, editor Iowa Posten.  
 G. L. Caswell, editor Denison Bulletin.  
 F. W. Bicknell, editor Mail and Times, Des Moines.  
 A. L. Seville, editor Cedar Falls Gazette.  
 L. E. Fay, editor Clinton Advertiser.  
 C. K. Kennedy, editor Atlantic Messenger.  
 Elmer E. Johnston, editor Rockwell City Advocate.  
 Ed. M. Smith, publisher Winterset Madisonian.  
 H. R. Mosnal, editor Union, Belle Plaine.  
 A. O. Lutze, Sioux City Courier.  
 Earl Bronson, Spencer Herald.  
 Phil. S. Kell, Spirit of the West, Des Moines.  
 Christian Union, Des Moines.  
 John Thompson, editor Farmers' Tribune.

**Editorial and news items:**

Farmers' Tribune, Sioux City.  
 Farmer and Breeder, Sioux City.  
 Wallace's Farmer, Des Moines (also letter).  
 Belle Plaine Union.  
 Waterloo Daily Courier.  
 Cedar Rapids Republican.  
 Waterloo Evening Times.  
 Hedrick Journal.  
 Iowa City Republican.  
 Clinton Herald.  
 Des Moines Register-Leader.  
 Carroll Times.  
 Mason City Times-Herald.  
 Dubuque Telegraph.  
 Creston Independent-American.  
 Ottumwa Courier.  
 Cedar Rapids Gazette.  
 Muscatine Journal.  
 Burlington Hawkeye.  
 Council Bluffs Nonpareil.

## KANSAS.

**Resolutions:**

Douglas County Horticultural Society, Lawrence.  
 Osage County Grange, No. 442, Lyndon.  
 Brooklyn Grange, Lacygne.  
 Clay County Fair Association.

**Letters:**

A. M. Ten Eyck, professor agronomy, State Agricultural College.  
 J. T. Willard, professor chemistry, State Agricultural College.  
 J. W. Berry, president board of regents, State Agricultural College.  
 V. M. Shoresmith, assistant professor crop production, State Agricultural College.

## Letters—Continued.

B. F. Smith, fruit and plant grower, Lawrence.  
 Frank C. Pomeroy, house of representatives, Holton.  
 E. R. McAnlis, manager Western Breeders' Journal, Clay Center.  
 E. B. Cowgill, editor Kansas Farmer, Topeka.  
 H. N. Gaines, manager The Farmers' Advocate, Topeka.  
 C. E. Ingalls, editor Republican Register, Washington.  
 S. P. Gebhart, editor Pratt Union, Pratt.  
 D. E. McCullum, editor Republican, Lincoln.  
 George F. Fullenwider, editor Advocate, Eldorado.  
 T. E. Leftwich, editor Winfield Tribune.  
 J. E. Jenkins, editor Sterling Bulletin.  
 Frank Fesler, editor Labor Record, Kansas City.

## Editorials and news items:

Farmers' Advocate, Topeka.  
 Kansas Farmer, Topeka.  
 Wichita Beacon.  
 Wichita Eagle.  
 Kansas Weekly Capital.  
 Lawrence World.  
 Leavenworth Times.  
 Lawrence Gazette.  
 Topeka Herald.

## KENTUCKY.

## Resolutions:

Joint convention Farmers' Institute and State Grange.

## Letters:

S. P. Wolcott, master State Grange.  
 Editor Inland Farmer, Louisville.  
 F. F. Gilmore, editor The Southern Home, Louisville.  
 Sam. J. Roberts, editor Lexington Leader.  
 Heber Matthews, editor Hartford Herald.

## Editorials and news items:

Farmers' Home Journal, Louisville.  
 Inland Farmer, Louisville.  
 Home and Farm, Louisville.  
 The Leader, Lexington.  
 Courier-Journal, Louisville.  
 Louisville Times.  
 Paducah News-Democrat.  
 Louisville Herald.  
 Lexington Herald.

## LOUISIANA.

## Letters:

W. R. Dodson, director agricultural experiment station.  
 C. W. Eichling, manager Avenue Floral Company, New Orleans.

## Editorials and news items:

Rice Journal and Southern Farmer, Crowley.  
 New Orleans Daily States.  
 New Orleans Times-Democrat.

## MAINE.

## Resolutions:

Acorn Grange, No. 418, Cushing.  
 Wilson Grange, No. 321, East Wilton.  
 Canton Grange, No. 110, Canton.  
 Halcyon Grange, Bluehill.  
 Morning Light Grange, No. 19.  
 Willow Brook Grange, No. 352, Newfield.

## Letters:

Obadiah Gardner, master State Grange.  
 E. E. Hardy, master Wilson Grange, No. 321.  
 A. L. Stevens, Halcyon Grange, Bluehill.

**Editorials and news items:**

Portland Advertiser.  
 Bangor Commercial.  
 Lewiston Sun.  
 Bath Times.  
 Cape Ann News, Gloucester.  
 Portland Press.  
 Rockland Star.  
 Lewiston Journal.

**MICHIGAN.****Resolutions:**

Quincy Grange, No. 152, Branch County.  
 Union Grange, No. 820, Oakley.  
 ——— Grange, No. 585, Holton.  
 Ashbaugh Grange, No. 1202, Lake City.  
 Belleville Grange, No. 331, Belleville.  
 Lenawee County Horticultural Society, Adrian.  
 Fisher Grange, No. 790, Harrisville.

**Letters:**

Jennie Buell, secretary State Grange.  
 L. R. Taft, horticulturist, agricultural college experiment station.  
 S. W. Fletcher, professor horticulture, agricultural college.  
 Colton C. Little, deputy commissioner, dairy and food department.  
 Andrew Olander, Isanti.  
 Publisher The Strawberry, Three Rivers.  
 Publisher Bay City Tribune.  
 H. P. Hetherington, editor Detroit Journal.  
 H. G. Wanty, manager Muskegon News.  
 E. P. Waldron, Mount Pleasant.  
 C. A. Tyler, Hampshire Down Breeders' Association of America.

**Editorials and news items:**

National Fruit Grower, St. Joseph.  
 Sugar Beet Culturist, Bay City.  
 Sault Ste. Marie Evening News.  
 Owosso Press-American.  
 Lansing Journal.  
 Detroit Times.  
 Muskegon News.  
 Adrian Times.  
 Menominee Herald-Leader.  
 Jackson Patriot.  
 Owosso Evening Argus.  
 Bay City Times.  
 Lansing Herald.  
 Bay City Tribune.  
 Kalamazoo Telegraph.  
 Grand Rapids News.  
 Detroit News.  
 Traverse City Eagle.

**MINNESOTA.****Letters:**

S. G. Baird, master State Grange.  
 F. L. Washburn, State entomologist.  
 D. A. Gaumnitz, assistant, agricultural experiment station.  
 J. N. Drew, registrar, University of Minnesota.  
 O. C. Gregg, superintendent, Farmers' Institutes.  
 Publishers Northwestern Agriculturist, Minneapolis.  
 Publishers Farm, Stock and Home, Minneapolis.  
 H. Sandholt, editor Dairy Record, St. Paul.  
 J. Burgess, editor Minneapolis Daily News.  
 A. C. Weiss, publisher Duluth Evening Herald.

**Editorials and news items:**

Northwestern Agriculturist, Minneapolis.  
 Farmer, St. Paul.  
 Farm Students' Review, Minneapolis.

## Editorials and news items—Continued.

St. Paul Pioneer-Press.  
 Duluth Evening Herald.  
 St. Paul Dispatch.  
 Mankato Free Press.  
 Minneapolis Journal.  
 Minneapolis News.  
 Minneapolis Tribune.  
 Rochester Post-Record.

## MISSOURI.

## Letters:

George B. Ellis, secretary State board of agriculture.  
 Joseph F. Marsh, secretary Merimac Horticultural Society, Stoutsville.  
 Emerson T. Abbott, editor Modern Farmer and Busy Bee, St. Joseph.  
 Publishers Tri-State Farm Journal.  
 Publishers Fruit Grower, St. Joseph.  
 H. K. Taylor, editor Woman's Farm Journal and Magazine, St. Louis.  
 F. L. Kelso, editor Missouri Agricultural College Farmer.  
 B. M. Duggar, University of Missouri.  
 H. S. Wayman, Princeton.

## Editorials and news items:

Modern Farmer and Busy Bee, St. Joseph.  
 The Packer, Kansas City.  
 Missouri and Kansas City Farmer.  
 Kansas City Journal.  
 St. Joseph Gazette.  
 Joplin Globe.  
 St. Louis Republic.  
 Joplin News-Herald.  
 Kansas City Post.  
 Kansas City Star.  
 Sedalla Capital.  
 Springfield Republican.

## MISSISSIPPI.

## Letters:

Glen W. Herrick, professor of biology, agricultural college.  
 E. R. Lloyd, professor agriculture, experiment station.  
 A. J. Moore, secretary Agricultural and Mechanical College.  
 Mason Snowden, Wilkinson County Cotton Association, Woodville.  
 Charles A. McClure, Walthall.  
 Charles M. Scherer, secretary Southern Farm Gazette, Starkville.  
 J. N. Boone, editor Prentiss Plaindealer, Booneville.  
 H. D. Wilson, editor New Albany Gazette.  
 James Faulk, Publisher Greene County Herald, Leakesville.  
 J. O'Holcomb, Hickory Flat Banner.  
 J. W. Jacobs, editor Calhoun Monitor, Pittsboro.  
 W. W. Conley, manager Commercial Publisher Company, Collins.  
 J. B. Mattison, The South, Holly Springs.  
 (Telegram.) T. L. Bellinger, editor Jackson News.

## Editorials and news items:

Southern Farm Gazette, Starkville.  
 Vicksburg American.  
 Meridan Star.

## MONTANA.

## Letters:

Alfred Atkinson, agronomist, agricultural experiment station.  
 W. J. Elliott, dairyman, agricultural experiment station.

## Editorial and news items:

Great Falls Tribune.  
 Great Falls Leader.  
 Butte Miner.



## NEBRASKA.

## Letters :

R. A. Emerson, horticulturist agricultural experiment station.  
 S. Avery, department chemistry, University of Nebraska.  
 Val Keyser, assistant superintendent Farmers' Institute.  
 W. C. Unitt, Seward.  
 C. P. Sturgiss, editor Twentieth Century Farmer, Omaha.  
 J. A. Davis, Bridgeport.  
 Publishers Farm Magazine, Omaha.  
 Proprietor Bohemian American Newspaper Union, Omaha.  
 George C. Wait, Elm Creek.

## Editorials and news items :

Twentieth Century Farmer, Omaha.  
 Nebraska Dairymen, Lincoln.  
 Lincoln Journal.  
 Omaha Bee.  
 Lincoln Star.  
 Lincoln News.  
 Fremont Tribune.

## NEW HAMPSHIRE.

## Resolutions :

Pinegrove Grange, Bath.  
 Chester Grange, No. 169, Chester.  
 Sunapee Lake Grange, No. 112, South Newbury.

## Letters :

H. O. Hadley, master State Grange, Peterboro.  
 J. D. Peaslee, secretary Sunapee Lake Grange, South Newbury.  
 S. R. Hansoam, Erral, N. H.  
 J. Earlfred Hall, master Nashua Grange, No. 13.  
 E. A. Chase, editor Plymouth Record, Ashland Citizen, Plymouth.  
 H. H. Sanderson, editor Lancaster Gazette.  
 M. Meehan, editor Concord Patriot.

## Editorials and news items :

Concord Monitor.  
 Batavia News.  
 Manchester Union.  
 Nashua Telegraph.  
 Portsmouth Chronicle.

## NEW JERSEY.

## Resolutions :

New Jersey State Grange.  
 Thorofare Grange, Paulsboro.  
 Ramsey Grange, No. 135, Ramsey.  
 Olive Branch Grange, Matawan.  
 Lincoln Grange, No. 136.  
 Bergen County Pomona Grange.  
 Upper Township Grange, No. 139, Tuckahoe.

## Letters :

Albert P. Knapp, master State Grange.  
 E. R. Collins, editor Jersey Farmer, Westfield.  
 Franklin Dye, secretary State board of agriculture.

## Editorials and news items :

Madison Eagle.  
 Paterson News.  
 Passaic News.  
 Flemington Republican.  
 Trenton Times.  
 Lakewood Times and Journal.  
 Camden Post-Telegram.  
 Newark Advertiser.  
 Trenton True American.  
 Jersey City Evening Journal.  
 Newark Call.  
 Burlington Enterprise.  
 Newark News.  
 Paterson Guardian.  
 Elizabeth Journal.  
 Trenton State Gazette.

## NEW YORK.

## Resolutions :

New York State Grange.  
Hugenot Grange, No. 1028, New Platz.  
Ethan Allen Grange, No. 961, Crown Point.  
Ellington Grange, No. 528, Chautauqua County.  
Pine Bush Grange, No. 1014, Pine Bush.  
Knoxboro Grange, No. 758.  
Lindenwald Grange, No. 985, Kinderhook.  
Onondaga County Grange, Syracuse. (Also Farmers' Club.)  
Gouverneur Grange, No. 303, Gouverneur.  
Tarrytown Horticultural Society.  
New York Produce Exchange.

## Letters :

W. N. Giles, secretary State Grange.  
L. B. Judson, assistant professor horticulture, State Agricultural College.  
James H. Jackson, president Jackson Sanatorium, Dansville.  
F. H. Stoneburn, editor Poultry Husbandry, Waterville.  
Publishers New York Produce Review, New York.  
Publishers New York Farmer, Port Jervis.  
John Craig, editor National Nurseryman, Ithaca.  
Manager The Garden Magazine, New York.  
Publishers Utica Press.  
Publishers Syracuse Post-Standard.

## Editorials and news items :

The American Florist, New York.  
The Florists' Exchange.  
New York Farmer, Port Jervis.  
Tribune Farmer, New York.  
Tobacco Journal, New York.  
The Florists' Review, New York.  
New York Produce Review and American Creamery.  
The Country Gentleman, Albany.  
The National Nurseryman, Rochester.  
The Country World, Jamestown.  
Yonkers Herald.  
New York Commercial.  
Niagara Falls Gazette.  
Albany Press-Express.  
Brooklyn Free Press.  
New York Sun.  
New York World.  
Rochester Democrat Chronicle.  
Gloversville Leader.  
New York Tribune.  
Albany Argus.  
Elmira Advertiser.  
Long Island City Star.  
Buffalo Express.  
New York Mail.  
Lockport Journal.  
Rochester Herald.  
Rochester Post-Express.  
Utica Tribune.  
Glens Falls Times.  
Greater New York Star.  
Utica Observer.  
Newburg News.  
Brooklyn Standard Union.  
Rome Tribune.  
Nyack Star.  
Utica Press.  
Chenango Telegraph, Norwich.  
Buffalo Evening News.  
New York Herald.  
Watertown Standard.  
Troy Times.

Editorials and news items—Continued.

Jamestown Journal.  
 New York Times.  
 Rochester Leading Republican.  
 Poughkeepsie Eagle.  
 New York Journal of Commerce.  
 New York Evening Post.  
 Genesee Courier.  
 New York American.  
 Schenectady Gazette.  
 Kingston Leader.  
 Buffalo Enquirer.  
 Brooklyn Life.  
 Ithaca Journal.  
 Yonkers Statesman.  
 Hornellsville Times.  
 Brooklyn Times.  
 Watertown Times.  
 Jamestown Morning Post.  
 New York City Nation.  
 New York City Daily People.  
 Brooklyn Citizen.  
 Troy Evening Standard.  
 Rochester Union and Advertiser.  
 Albany Times Union.  
 Buffalo Illustrated Times.

NORTH CAROLINA.

Letters:

George T. Winston, president College of Agriculture and Mechanic Arts.  
 F. C. Reimer, assistant professor horticulture.  
 J. C. Kendall, assistant professor dairy husbandry.  
 Tait Butler, State veterinarian and director farmers' institutes.  
 B. W. Kilgore, director agricultural experiment station.  
 T. K. Bruner, secretary department of agriculture, Raleigh.  
 James B. Dudley, president State Agriculture and Mechanical College for Colored Race.  
 W. N. Hatt, State horticulturist, Raleigh.  
 Joseph E. Avent, editor Scottish Chief, Moxton.  
 George E. Webb, editor Southern Tobacco Journal.  
 W. E. Dowd, editor Textile Excelsior, Charlotte.  
 Al Fairbrother, publisher Greensboro Everything.  
 P. H. St. Clair, editor Sanford Express.  
 B. B. Clark, editor Statesville Landmark.  
 P. H. Elkins, Siler City Grit.  
 J. M. Stoner, Our Mountain Home, Asheville.  
 H. P. Allison, editor Kings Mountain Herald.  
 A. G. Hollerek, editor Darlington News (telegram).  
 Zeb. P. Council, editor Durham Recorder.  
 J. E. Smith, editor Bryson Appalachian (telegram).  
 J. M. Spencer, vegetable grower, Newbern.  
 J. H. Caine, Asheville Citizen.  
 J. Frank Fooshe, editor Winnsboro News and Herald.  
 Frank A. Hampton, editor Washington Daily Messenger (telegram).  
 J. B. Burgster, editor Jamestown Daily Capital (telegram).

Editorial and news items:

The Progressive Farmer, Raleigh.  
 Charlotte Evening Chronicle.  
 Raleigh News and Observer.  
 Raleigh Times.  
 Asheville Gazette News.  
 Winston-Salem Twin City Sentinel.  
 Charlotte News.

## OHIO.

## Resolutions:

Guadenhutten Grange, No. 1486.  
 Butler Grange, No. 993, Columbiana County.  
 Berlin Grange, No. 629, Delaware.  
 Washington Grange, No. 5.  
 Ohio State Grange (*see* testimony).  
 Sandusky Grange.

## Letters:

Charles E. Thorne, director agricultural experiment station.  
 T. L. Calvert, secretary State board of agriculture.  
 Editor Farm and Fireside, Springfield.  
 Editor Daily News, Dayton.  
 C. G. Norton, Sandusky city.  
 S. J. Flickinger, editor Dayton Journal.  
 G. C. Housekeeper, Marysville.  
 Editor Akron Democrat.  
 A. P. Sandles, president State board of agriculture.  
 J. F. Wickenham, Peebles.  
 C. M. Freeman, past secretary Ohio State Grange, secretary National Grange.

## Editorials and news items:

American Grange Bulletin, Cincinnati.  
 Ohio Farmer.  
 Inland Grocer, Cleveland.  
 Cincinnati Packer.  
 Cleveland Plain Dealer.  
 Mount Vernon Daily Banner.  
 Dayton Herald.  
 Warren Chronicle.  
 Cincinnati Times-Star.  
 East Liverpool Review.  
 Cincinnati Post.  
 Lima Republican Gazette.  
 Findlay Republican.  
 Columbus Press-Post.  
 Springfield Daily News.  
 Cincinnati Enquirer.  
 Newark American-Tribune.  
 Youngstown Vindicator.  
 Elyria Chronicle.  
 Canton Repository.  
 Canton News.  
 Columbus Journal.  
 Hamilton Republican-News.  
 Toledo Blade.  
 Hamilton Telegraph.  
 Dayton News.  
 Cleveland News.  
 Conneaut News.  
 Cincinnati Commercial-Tribune.  
 Cleveland Leader.  
 Dayton Journal.

## OREGON.

## Resolutions:

White Clover Grange, No. 279, Tillamook.  
 Natal Grange, No. 302, Mist.  
 Harmony Grange, No. 23, Lebanon.  
 Harding Grange, No. 122, Oregon City.

## Letters:

James Wilthycombe, director agricultural experiment station.  
 M. D. Wisdom, editor North Pacific Rural Spirit, Portland.

**Editorials and news items:**

- Rural Spirit, Portland.
- Northwest Pacific Farmer.
- Salem Statesman.
- Astoria Astorian.
- Portland Oregonian.
- Portland Telegram.
- Pendleton East Oregonian.

**PENNSYLVANIA.****Resolutions:**

- Beaver Grange, No. 838, Conneautville.
- Spring Brook Grange, No. 1037.
- Central Grange, Towanda.
- Fairview Grange, No. 817, Farmington.
- Wyebrooke Grange, No. 1306, Barneston.
- Sylvester Grange, No. 1078.
- Corydon Grange, No. 1205.
- Fleetville Grange, No. 1199, Dalton.
- Romola Grange, No. 1192, Howard.
- Lake Grange, No. 806, Susquehanna County.
- State Horticultural Society.

**Letters:**

- E. S. Bayard, Axtell-Rush Publishing Company, National Stockman and Farmer, Pittsburg.
- Publishers House and Garden, Philadelphia.
- Publishers Pittsburg Chronicle-Telegraph.
- George S. Oliver, manager Pittsburg Gazette.
- Publishers Philadelphia Inquirer.

**Editorials and news items:**

- Rural Farmer, Philadelphia.
- Practical Farmer, Philadelphia.
- Pennsylvania Grange News, Chambersburg.
- Pittsburg Leader.
- McKeesport Times.
- Scranton Republican.
- Reading Times.
- Harrisburg Star-Independent.
- Pittsburg Post.
- Philadelphia Public Ledger.
- Philadelphia North American.
- Philadelphia Record.
- Doylestown Intelligencer.
- Titusville Herald.
- New Castle News.
- McKeesport News.
- Philadelphia Inquirer.
- Johnstown Democrat.
- Philadelphia Press.
- Philadelphia Record.
- Homestead News Messenger.
- Erie Dispatch.
- Wilkes-Barre Leader.
- Pittsburg Chronicle-Telegraph.
- Philadelphia Bulletin.
- Lancaster Examiner.
- Pittsburg Dispatch.
- Philadelphia Telegraph.
- Scranton Republican.
- Erie Dispatch.
- Wilkes-Barre News.
- Erie Herald.
- Pittsburg Gazette.
- Altoona Gazette.
- York Gazette.
- Chester Republican.

**Editorials and news items—Continued.**

Pittsburg Times.  
 Scranton Times.  
 Scranton Truth.  
 Williamsport Sun.  
 Phoenixville Republican.  
 Pittsburg Press.  
 Johnstown Tribune.  
 Scranton Tribune.  
 Greensbury Tribune.  
 Wilkes-Barre Times.  
 Philadelphia Saturday Evening Post.  
 Washington Journal.  
 Delaware County Democrat, Chester.  
 Philadelphia Item.  
 Meadville Star.  
 The Church Standard, Philadelphia.

**RHODE ISLAND.****Resolutions:**

State Horticultural Society.  
 Narragansett Grange, No. 41, Wakefield.  
 Central Grange, No. 34, Apponaug.

**Letters:**

F. E. Marchant, Master State Grange, West Kingston.  
 J. Willard Bolte, assistant professor agricultural and mechanical arts,  
 Kingston.  
 Frederick K. Roy, manager Providence Journal and Evening Bulletin.

**Editorials and news items:**

Newport Herald.  
 Providence Tribune.  
 Newport News.  
 Providence Journal.

**SOUTH CAROLINA.****Letters:**

J. N. Harper, director agricultural experiment station.  
 C. L. Knoman, agricultural experiment station.  
 Daniel McKie, Woodlawn.  
 J. L. Dart, manager Charleston Southern Reporter.  
 Publishers Cherokee News, Gaffney (telegram).  
 W. A. Schrock, editor Camden People.  
 C. K. Schwran, editor Rock Hill Record.  
 N. Rogers Bayly, editor Batesville Advocate.  
 Ed. H. DeCany, publisher Gaffney Ledger and Grit and Steel.  
 Virginia D. Young, editor Fairfax Enterprise.  
 J. Lee Platt, Mullins Enterprise.  
 J. T. Bigham, editor Chester Lantern.  
 S. A. Nettles, editor Southern Christian Advocate, Spartansburg.  
 Mary B. Poppenheim, editor Keystone, Charleston.  
 W. C. Flosserson, Bullock Creek, York County.  
 James H. Burfee, vice-president Chamber of Commerce, Seneca.

**Editorials and news items:**

Columbia State.  
 Charleston Gazette.  
 Charleston News.  
 Charleston Evening Post.

**TENNESSEE.****Letters:**

H. A. Morgan, director agricultural experiment station, Knoxville.  
 H. B. Clay, Solitude Stock Farm, Church Hill.  
 J. E. Converse, Morristown.  
 Robert L. Burch, manager The Merchant and Manufacturer, Nashville.  
 Sam K. Cowen, publisher Southern Lumberman, Nashville.  
 S. A. Cunningham, publisher Confederate Veteran, Nashville.  
 T. B. Medearis, editor A. O. U. W. Messenger, Nashville.  
 J. W. Simonton, editor Covington Leader.

**Editorials and news items :**

Memphis Morning News.  
Nashville American.  
Nashville Banner.  
Memphis Commercial-Appeal.  
Chattanooga Times.  
Memphis News-Scimitar.

**TEXAS.**

**Resolutions :**

South Texas Fruit Growers and Truck Growers' Association.  
Houston Truck Growers' Association.

**Letters :**

G. S. Fraps, State chemist agricultural experiment station.  
Editor Texas Stockman and Farmer, San Antonio.  
Editor Farm and Ranch, Dallas.  
Editor Houston Chronicle.  
Clarence Ousley, editor Fort Worth Record.  
Editor Waco Times-Herald.

**Editorials and news items :**

Farm and Ranch, Dallas.  
Texas Farmer, Dallas.  
Southern Shippers' Guide.  
Denison Herald.  
San Antonio Express.  
Houston Chronicle.  
Kaufman County Sun.  
Galveston Tribune.  
San Antonio Daily Light.  
El Paso Herald.  
Austin Statesman.  
Houston Post.  
Dallas Times-Herald.  
Fort Worth Record.  
Galveston News.

**UTAH.**

**Letters :**

James M. Fisher, jr., president Salt Lake Horticultural Society, Calders.

**Editorials and news items :**

Ogden City Examiner.  
Deseret Evening News.  
Ogden Standard.  
Salt Lake City Herald.  
Salt Lake News.

**VERMONT.**

**Resolutions :**

Rutland Valley Grange, No. 314, Center Rutland.

**Letters :**

J. L. Hills, director agricultural experiment station, Burlington.

**Editorials and news items :**

St. Albans Messenger.  
Rutland Evening News.  
Burlington Free Press.  
Windsor Journal.  
Burlington News.

**VIRGINIA.**

**Letters :**

Meade Ferguson, bacteriologist, experiment station.  
J. L. Phillips, State entomologist, Blacksburg.  
J. F. Jackson, editor Southern Planter, Richmond.  
Harry A. Stone, manager Southern Tobacconist and Modern Farmer, Richmond.  
Publisher Virginian Pilot, Norfolk.

**Editorials and news items :**

Southern Planter, Richmond.  
 Richmond News Leader.  
 Richmond Times-Dispatch.  
 Richmond and Manchester News Leader.  
 Roanoke World.  
 Roanoke Times.  
 Norfolk Dispatch.  
 Roanoke News.

**WASHINGTON.****Resolutions :**

State Grange.

**Letters :**

Publishers The Ranch, Seattle.  
 Publishers Farm and Home, North Yakima.

**Editorials and news items :**

Walla Walla Union.  
 Seattle Times.  
 Seattle Post-Intelligencer.  
 Tacoma Ledger.  
 Everett Herald.  
 Tacoma News.

**WEST VIRGINIA.****Resolutions :**

Jefferson Grange, No. 377, Pleasants County.

**Letter :**

J. H. Rolston, Willere.

**Editorials and news items :**

Wheeling Intelligencer.  
 Wheeling Telegraph.  
 Wheeling Register.  
 Parkersburg Dispatch-News.

**WISCONSIN.****Letters :**

W. A. Henry, professor of agriculture, University of Wisconsin, College of Agriculture.  
 E. P. Sandsten, horticulturist.  
 Geo. McKerrow, superintendent farmers' institute.  
 J. G. Moore, assistant commissioner dairy and food commission.  
 U. S. Baer, secretary Wisconsin Cheesemakers' Association, Madison.  
 J. C. Jetter, publisher North Freedom Journal.  
 Frank E. Noyes, manager Marinette Eagle-Star.

**Editorials and news items :**

Wisconsin Agriculturist, Racine.  
 Marinette Star-Eagle.  
 Janesville Gazette.  
 Milwaukee News.  
 Milwaukee Journal.  
 Fond du Lac Reporter.  
 Wisconsin, Milwaukee.  
 Wisconsin Times.  
 Milwaukee Sentinel.  
 Oshkosh Northwestern.

**WYOMING.****Letters :**

B. C. Buffum, director agricultural experiment station, Laramie.  
 C. Watt Brandon, Pinedale.  
 (Telegram.) Publishers Encampment Herald.



COMMITTEE ON AGRICULTURE,  
HOUSE OF REPRESENTATIVES,  
*Washington, D. C., December 17, 1906.*

The committee met this day at 10.50 o'clock a. m., Hon. James W. Wadsworth in the chair.

**STATEMENT OF MR. BEVERLY T. GALLOWAY, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. The committee will come to order. Doctor, in order that the record may be regular, as it were, we will go on with that seed business first, and then while you are here, if we have time, we will take up with you the estimates of appropriations.

Mr. GALLOWAY. All right, sir. I came up only on the seed matter, however. Some questions may arise in reference to the estimates in regard to which I may want to consult my memorandum notes. But I will do the best I can.

The CHAIRMAN. Then we can have you again. I thought it might save time and trouble to have you speak now.

Now, Doctor, go on and state in your own way what you have to say. As I understand it, what you present will be the Department's view of the seed question?

Mr. GALLOWAY. Yes, sir. I shall present the Department's view and represent the Secretary in this matter, because I talked the problem over very fully with him, and the policy of the Department on this whole subject, I think, is pretty well understood. After all that has been said before the committee regarding the distribution of miscellaneous vegetable and flower seed it is not necessary to add very much from the standpoint of the Department. For the past six years the Department has sent out annually about 7,000,000 packages, of 5 papers each, of vegetable seed, and has never had any of these seed left on hand. During the six years the number of packages sent out has remained the same, while the cost has decreased about 12 per cent. This has been accomplished through improved methods of handling the work, by the introduction of modern machinery, and by doing away with the middleman in contracting.

The Department really does the work which was formerly done by the contractor, and thus saves the profit paid to him. In this way we have been able to save about \$30,000 annually in the last six years, and have used this money in connection with the distribution of rare and uncommon seeds.

The matter of the number of packets of seeds put up is one wholly dependent upon the kinds bought. If we bought certain kinds of seeds we could supply each Member of Congress with 20,000 packages of 5 packets each, but they would necessarily be very cheap kinds. If, on the other hand, we attempted to secure only novelties, i. e., very rare varieties that have scarcely been introduced by seedsmen, we would be limited to 3,000 or 4,000 packages each, so that the number of packages is a matter wholly of the kind of seeds that we secure. We have endeavored to secure the very best quality of seed of the kind that is obtainable, and I think that I can say fairly that the seeds we are now sending out are better than those we sent

out six or seven years ago, and they are getting better all the time. At the same time it must be understood that these seeds are of the average ordinary kind that the seedsmen themselves handle, and if, as I said before, we attempt to secure the novelties, which the seedsmen also handle, they would cost us eight or ten times as much.

Mr. CANDLER. Now, Doctor, right on that point. It has been charged frequently that these are not only very common seeds, very ordinary seeds, but of low grade, and so forth. You heard one of the gentlemen the other day that made practically that statement, and I would be glad if you would go into details and tell us exactly what processes and methods you pursue in order to get the seeds—the method you pursue in order to determine whether they are true to type and as to variety and quality of seed, and so forth.

Mr. GALLOWAY. The seeds are not poor seeds.

Mr. CANDLER. You know they spoke of your paying 15 cents a pound for onions while they were paying 30 cents.

Mr. GALLOWAY. We got these seeds out of stock in the spring—that is, they were on hand, and the same varieties were selling in the autumn for 75 cents or more a pound. In other words, we had offers to exchange those seeds in the autumn at a large profit. The offers came from seedsmen who were willing to exchange other kinds of seed for onion seed, the onion seed being scarce that year.

There is a wide range in the price of seeds, not only in the kinds of seeds, but in different years. It would be practicable, as pointed out, to secure seeds of such kinds that we could give each Member 20,000 packages instead of 12,000. This would necessitate, however, the elimination of all high-priced seed, such as corn, beans, peas, etc. On the other hand, we could, by limiting ourselves to novelties—that is, seeds which are as yet but little known—so increase the cost as to make it necessary to cut down the number of packages to two or three thousand for each Member. A standard variety of tomato, for example, might be bought for from 60 to 75 cents per pound, while a novelty might cost \$5, \$10, or even \$15 per pound, all depending on its newness and superior qualities.

Every member of the committee is perfectly familiar with the workings of the system of distributing the seed by the assignment of a certain number of packages to each. Each Member is the best judge as to whether these seeds are serving a useful purpose or not. The Members themselves are in close touch with their people and know their wants—something which even the Department with its machinery can not ascertain.

Now, we get these seeds in two ways: First, out of stock. Every year there is produced for seedsmen a surplus. A seedsman contracts with a grower to grow for him a certain number of bushels of beans, for example. The grower, in order to be safe, plants enough not only to supply that contract, but some excess. Now, if this happens to be a good year, there is produced more than an average excess, and that plan is followed by all the growers. You will see that in this way a surplus of stock is produced and left on the market.

Every spring we send out notices to the prominent growers of seed and seedsmen, asking what they can supply us out of stock. After we get the returns we see what is available, and our experts go over the matter and decide whether we will purchase the seeds or not, and there comes in the necessity of expert knowledge as to what the

possibility of next year's supply will be. We were fortunate in getting the onion seed referred to in this way.

Now, we serve two purposes in getting our stock in this way: First, we are able to determine definitely just what we can depend upon for seed, and secondly, we help the seedsmen by relieving the market of surplus stock. After the stock seed is all itemized we may find that we have 50, 60, or 70 per cent of our supply for next year, and then we must arrange with growers to supply the rest. We try to select good growers, who will grow for us seeds under a contract that allows our men to visit their grounds and inspect the growing plants, and if there is any evidence that the seed which is being grown is not true to the name, we have the option of rejecting it. On the other hand, the seed we buy in stock we do not accept unless it germinates to a certain vitality or unless it is true to name.

Now, as to the methods of testing, we have in our Department the best organized force, I think, in this country, if not in the world, for testing the vitality of seeds; and the samples of seeds that we get, both out of stock and those which we buy through the growers, as rapidly as they come in are tested and their vitality determined. If their vitality falls below a certain percentage we have the privilege of rejecting them.

Mr. CANDLER. What percentage is that?

Mr. GALLOWAY. It varies with different crops in different years. With beans it may be 90 per cent. Some years it may be difficult to get beans that will germinate that high. Our vitality tests must necessarily vary with the seeds. Our experts are in possession of the facts that bear on the question of vitality, and we gauge our requirements by the year. In the old days it was an arbitrary standard, and in many cases that was not found to be practicable or fair. I remember in one of the first distributions that I had charge of the standards were arbitrary, and it was impracticable to get certain kinds of seeds that would germinate as high as the requirements. Hence the contractor was constantly asking for the privilege of substituting.

Mr. CANDLER. I understand you have knowledge of the standard of seed that is grown in this particular year, and that you require the highest standard of germination for that year?

Mr. GALLOWAY. Exactly. For example, sweet pea seed, one of the flower seeds that we distribute, is grown largely in California. The crop may be making good progress, when a hot wind may sweep over the fields, and in a few days produce such effects that the vitality will be greatly affected. With a knowledge of these facts, of course, we guide ourselves accordingly.

Mr. COCKS. This is while the pea is growing?

Mr. GALLOWAY. Yes; this is while the pea is growing. In addition to the vitality work, we carry on at four or five places extensive trial-ground tests. Here we test not only all the varieties we distribute, but also many varieties offered by the seedsmen which give promise of being worthy of distribution.

Mr. CANDLER. You do not distribute any of these seeds, as I understand, that are left over by the seedsmen from one year to another?

Mr. GALLOWAY. No, sir.

Mr. CANDLER. Lapdrecht claims that any seed that is left in the hands of the dealers is taken up by his firm and destroyed, so that

they have the reputation of having fresh seed only. He says others distribute seeds grown one year in the next year, and they do not come up.

Mr. GALLOWAY. Some seeds are benefited by age. Others are quick to deteriorate with age. Every year we are required by law to distribute all the seeds we get. We have nothing left, and hence we must go every year into the market to get our new stock. Now, if the stock does not come up to the standard we reject it, and the consequences are we have nothing old to work off. We have no old seeds left on hand.

Mr. COCKS. Do not the growers frequently keep seeds over a year?

Mr. GALLOWAY. Yes; I think all seedsmen do that, more or less, but of course the reputable men follow the same practice that we do in the vitality tests, and when a test falls below a certain point the seed is destroyed or sold for chicken feed, or used in some such way.

Mr. CANDLER. Then you do not send out any seeds of any varieties except those that have been tested as to vitality and those tested to, determine whether they are true to type? All yours are tested in that way?

Mr. GALLOWAY. Yes.

Mr. COCKS. You can not test the seed sent out this year as to whether it is true to type?

Mr. GALLOWAY. That has been attempted a number of times, but the only thing we can do is to visit our growers where these seeds are being grown. At the same time we are careful in making our trial ground lists to keep track of every lot of seed that comes in, and if we find a grower who is not furnishing his stock true to name the next year we do not have dealings with him. We find very little of that difficulty, however, because the seed business is now so well organized and the fields where the seeds are grown are so accessible that our experts have access to most of them while in actual growth, and can tell better in that way than in any other whether the stock is true to type.

Mr. CANDLER. They say also that these seeds are distributed indiscriminately over the country, without any reference to whether they are adapted to the soil and climate or not. Please tell us what the Department actually does as to that.

Mr. GALLOWAY. Since the seed work has been in the Bureau of Plant Industry we have been endeavoring every year to have the seeds go into the regions where they are best adapted, and to that end we have divided the country into seven sections, and we select the seeds with reference to these sections. Hence the seed that we send into your State, for example, would not be the same as that which we would send into the States north of you, and what we send to the States north of you would not be the same as we send into the New England States; so that I think that matter has been pretty well worked out, and we are satisfied that the results are much better than they were under the old plan of buying so many seeds, and making them up into so many packages, and sending them out indiscriminately.

Mr. CANDLER. Now, what are the seeds you distribute as to variety?

Mr. GALLOWAY. Mr. Chairman, I do not know whether the way we are proceeding is the best one to bring out the various points in regular order.

The CHAIRMAN. Go on in whatever order you like. You might make a memorandum of the special questions that you want to answer.

Mr. GALLOWAY. Very well. I will come to Mr. Candler's question in a few minutes. Every Member, of course, is perfectly familiar with the system of sending out these seeds, and it is not necessary for me to comment to any extent on that. But I want to emphasize again the fact that we never have any seeds left on hand, and we always have a great many more requests for seeds than we are able to supply. Roughly, I should say that last year we had requests for one-third more seeds than we were able to furnish.

It may be of interest to you to know something of the manner in which the seeds are distributed—that is, the quantities distributed by different Members. I have here a brief statement which shows that 59 Members last year distributed over 20,000 packages each, 157 Members distributed over 12,500 packages but not exceeding 20,000 packages each, 246 Members distributed approximately 5,000 packages each, 13 distributed between 1,000 and 5,000 packages each, and 3 distributed less than 1,000 packages each. With your permission, I will incorporate this statement in the record.

*Congressional distribution of vegetable and flower seeds, 1905-6.*

(1) Number of Congressmen who distributed more than 20,000 packages of seed -----	59
(2) Number who distributed more than their regular quotas (12,500 packages) but less than 20,000 packages -----	157
(3) Number who distributed not exceeding, approximately, their regular quotas but more than 5,000 packages -----	246
(4) Number who distributed less than 5,000 packages but more than 1,000 packages -----	13
(5) Number who distributed less than 1,000 packages -----	3
Total -----	478

NOTE.—The word "distributed" is used to indicate the number of packages put up by the seed contractor. That is, if a Member transferred, say, 10,000 packages of seeds to another Member, the former is included above in (4), while the latter is included in (1).

The lowest number of seeds distributed by any one Member was 131 packages, this Member having transferred the balance of his quotas to other Congressmen.

Now, the number who distributed not exceeding their quota, that is, not exceeding 12,000 packages, was, as I said, 246, and the number who distributed less than 5,000 packages was 13, and the number who distributed less than 1,000 packages was 3.

The CHAIRMAN. Of course, where a city Member gave his quota to a country Member it is charged against the city Member. Against whom would that appear?

Mr. GALLOWAY. That would appear against the man who distributes them, not against the man who had them. For instance, the gentleman who distributed only 1,000 packages might have assigned the rest of his supply to one of those who distributed a great quantity, so that out of a total of 478 Members there were the numbers as I have given them—59 distributing 20,000 packages each, 157 each distributing between 12,500 and 20,000 packages, 246 distributing 5,000 packages, 13 distributing between 1,000 and 5,000 packages, and 3 distributing less than 1,000 packages each.

Mr. CANDLER. You included in that Members of the House and of the Senate also?

Mr. GALLOWAY. That includes both.

The Department's attitude on the ordinary seed distribution has been, I think, well understood for some time, and has been quite fully set forth in a number of the honorable Secretary's reports. In his report for 1903 the Secretary said:

With regard to the securing and distributing of miscellaneous garden and flower seed, the fact remains that this work does not accomplish the ends for which the law was originally framed. \* \* \* These seeds are the best that can be obtained in the market, but from the fact that large numbers of packets are wanted, the seed obtained can be of standard sorts only, such as are to be found everywhere for sale in the open market.

The Secretary further says:

As there is no practical object to be gained in distributing this kind of seed [meaning miscellaneous vegetable and flower seed], it seems very desirable that some change be made. To this end it would seem wise to limit our work entirely to the securing and distributing of seeds, plants, etc., of new and rare sorts.

On this particular point I wish to a little more clearly state the attitude of the Secretary and of the Department in this whole matter. Congress in a number of ways has manifested its desire to have these miscellaneous vegetable and flower seeds, and to have them in such quantities as to meet the demands of their constituents. The Department has endeavored, and will continue to endeavor, so long as Congress takes this attitude, to supply the best seed available for the purpose. If Congress, in its judgment, believes the time has come to make a change, the Department stands ready to indicate in what manner this change can be made and in what way the funds now appropriated might be used for the upbuilding of plant industries. I am here to present this plan and to invite your suggestions and criticisms upon any points regarding it.

By way of introduction I may say that, in my judgment, the first error was made by the officers of the Department in the early days of plant and seed distribution by assigning to Senators and Members a certain specific number of packages. I do not know when this plan was first inaugurated, but to my knowledge it has been in operation in the Department for twenty years or more. We found the system so firmly established when the work was turned over to the Bureau of Plant Industry that it was quite impracticable to change it in its entirety. From time to time, however, we have adopted different methods with certain crops with, I believe, much more valuable results than have followed where the question of the division of packages was handled in a purely arbitrary way. Probably what was in the minds of the officers of the Department who inaugurated this plan was to equalize in a measure the things given to each Member. As the country grew and the demand for seeds became greater and greater, the Members found that the small number of packages assigned them was really a hindrance rather than a help, even as it would be now if Members were not in position to secure more than their regular allotment. This point is so well understood that it is not necessary to make any additional statements relative thereto. Any plan, therefore, that would have for its object the assignment of a certain number of packages to individual Mem-

bers would be objectionable because it would necessarily lead to difficulties in the districts where it would be impracticable to reach all those who really wanted new things.

It was a great deal easier for the man having the work in charge to sit down at a desk and mathematically divide the total quantity of seeds on hand than to study the needs of individual districts. So the practice grew of distributing quotas without regard to locality. A definite assignment of packages would be a mistake, as there would never be enough to go round.

Mr. HENRY. Have you ever tried that practice more than one year of sending to each Member 500 packages of selected seed?

Mr. GALLOWAY. Those were called novelties, and as I said the other day, we had most of them left on our hands. The plan that we want to suggest has for its object—

First. The abandonment of the miscellaneous distribution of ordinary seeds.

Second. The securing, through all the sources at the command of the Department, of valuable new seeds, plants, bulbs, etc., which are being developed at home and which are known only locally, and the distribution and testing of these new things in regions where it is believed they may have value.

Third. The securing from abroad of new seeds, plants, etc., for introduction into this country, and the upbuilding of agricultural industries as a result of this work.

In order to crystallize the suggestions made in the foregoing, I would like to submit a substitute for the existing authority for the purchase and distribution of seeds.

We have proposed two distinct lines of work: First, the securing and distribution of new things from this country, and secondly, the securing, distributing, and testing of new things from abroad. We have in this country many good things that are being developed by individuals here and there. The Department can, as it has done heretofore, get in touch with these men and secure these seeds and plants and distribute them. In addition, the Department, with its own scientists, is now breeding and distributing many kinds of seed.

The work abroad is of a different type, but it has practically the same end in view, namely, the securing from all parts of the world of good things and new things, and bringing them to this country, testing them in cooperation with individual farmers and growers, and the building up of new industries thereby.

As an example of one line of work, where local seed is the object, I might cite our tobacco investigations. Under the old plan it was the practice of the Department to send to the men who grew tobacco seed and secure 2 or 3 or 5 pounds of tobacco seed, put the same up into small packets, and give each Member 10 packages of 5 packets each.

Those tobaccos were simply what the ordinary growers grew. For the last four or five years we have had tobacco experts breeding special kinds of tobacco, and we now have types of very superior kinds. In various parts of the country we have developed particular types of tobacco peculiar to those regions. We have developed, in Florida and in Kentucky, for example, types of tobacco that are peculiar to those localities.

Mr. HENRY. Are you certain yet that these types that you have developed are going to be successes?

Mr. GALLOWAY. That is a question yet, but some of them certainly will be successes.

Mr. HENRY. You have not grown them long enough, however, to absolutely demonstrate that?

Mr. GALLOWAY. That is true.

Mr. HENRY. I have reference to your outdoor selections.

Mr. GALLOWAY. Mr. Chairman, some of these types have shown their unquestionable superiority over the old types. Instead of sending out the ordinary seed we are putting out these special kinds, and many have tested them under different conditions of soil and climate. We do not assign to each Member a certain number of packages, but we determine how much of the good seed we have and then send a communication to a Member representing a Kentucky district, for example, where fine tobaccos are grown, and ask him to furnish us with forty, fifty, or sixty names of good tobacco growers with whom we can get in correspondence, and if they are willing to undertake cooperative work we send them seed to plant. That is done through the different States.

Mr. HENRY. I want to have the privilege of saying that there has been something over 100 acres of tobacco under shade up in Connecticut, and one grower who grew last year some 60 acres has sold his first picking from the shade grown—that is, the bottom leaves, which are the poor leaves—they call them the “sand leaves”—he has just sold 13,000 pounds for export to Germany, at 75 cents a pound, and he has been offered \$1 for his other leaf and has not accepted it. I simply speak of that as a demonstration that the shade-grown tobacco is not a failure. It is being taken up by conservative men. This man whom I refer to has been in the business right along, and he is following it up. Next year he will put out 110 acres.

Mr. HAUGEN. How much do they get per acre?

Mr. HENRY. Last year this man sold his crop of “Connecticut seed,” as it is called, for nearly \$1,200 an acre, and his crop of Connecticut fine, twenty acres, for a little less than \$1,100 an acre.

Mr. GALLOWAY. The select seed we use in Florida, which has come as a result of this work, yields more than \$400 per acre more than the average crop. The average crop there, I believe, yields about \$1,000 per acre. We have already received in answer to the tobacco-seed circular requesting cooperation that we sent out last year about 4,000 replies, showing that the people take an interest in that work and will supply us with full data as it progresses.

Mr. LAMB. Have you got any replies from Virginia?

Mr. GALLOWAY. I think we have. With each lot of tobacco we send out a small pamphlet calling attention to the desirability of improving the types, and calling attention, furthermore, to what the Department has done by selection and breeding and asking the planter to plant these alongside of the ordinary kinds he is raising and to let us know the comparative result at the close of the season. These 4,000 replies that we have already gathered in we are beginning to compile.

In order to crystallize this matter I may, with your permission, Mr. Chairman, present a clause or item which is, in a measure, a suggested substitute for the existing seed bill.



The CHAIRMAN. The free seed bill?

Mr. GALLOWAY. Yes; and I offer this, of course, with the understanding that it is to be freely discussed, and I shall be glad to answer any questions relative thereto. It is short and covers the point that we have discussed, as to the manner in which we would do the work, and so forth. It reads:

For the purchase, propagation, and testing of new, rare, and uncommon seeds, bulbs, trees, shrubs, vines, cuttings, and plants, foreign and domestic; for the rent of buildings (not to exceed three thousand dollars); the employment of agricultural explorers, local and special agents, clerks, assistants, and all other necessary labor required in the city of Washington and elsewhere; the purchase of necessary office fixtures and supplies, paper, twine, gum, printing, postal cards, fuel, gas and electric current, transportation, traveling expenses, and all necessary material for securing, testing, propagating, packing, and distributing the seeds, bulbs, trees, and so forth, above specified, two hundred and forty-two thousand dollars. And the Secretary of Agriculture is hereby directed to spend the said sum, as nearly as practicable, for the encouragement and advancement of agriculture and horticulture throughout the United States, through the systematic introduction of new, rare, or uncommon seeds, bulbs, trees, vines, cuttings, and so forth; in the establishment of new or the improvement of existing plant industries; in collating, digesting, reporting, and illustrating the results obtained through the testing and distribution of new and rare seeds, bulbs, and plants herein provided for; and the Secretary of Agriculture is further directed to purchase such new and rare seeds, bulbs, plants, vines, and cuttings at public or private sale, and to arrange for the propagation, testing, and distribution of such seeds, bulbs, plants, and cuttings in such manner as he may deem expedient, obtaining, so far as practicable, the advice and cooperation of Senators, Representatives, and Delegates in Congress: *Provided*, That such seeds, bulbs, and plants shall be distributed to actual experimenters only for experimental tests, and that the Secretary of Agriculture shall cause a record to be kept of all persons to whom seeds, bulbs, or plants are sent, in order that reports on the results of the experiments may be secured in as many instances as possible: *And provided further*, That the Secretary shall, so far as practicable, cooperate with the State experiment stations and practical farmers, fruit growers, and others, in order that the seeds, bulbs, and plants may be distributed with due regard to their adaptability to the various soil and climatic conditions prevailing in the United States. The Secretary of Agriculture is hereby also directed to prepare annually a report showing what the results of the distribution have been.

That directs the Secretary, first, to secure these rare and uncommon seeds, both domestic and foreign, and to distribute them to actual experimenters only; to distribute them in cooperation with the Members and Senators and the State experiment stations, and each year publish a report on the results of the work.

The CHAIRMAN. Have you any fear that that might grow into another free-seed distribution?

Mr. GALLOWAY. No, sir.

Mr. BROOKS. Mr. Chairman, I beg the pardon of the committee, but I was called out by another committee to vote. Would you mind reading the first part of that again?

Mr. GALLOWAY. The first part deals mainly with the authority to employ agents in Washington. Do you mean that?

Mr. BROOKS. No; I mean the next part.

Mr. GALLOWAY. This is the part Mr. Brooks is interested in [reading]:

And the Secretary of Agriculture is hereby directed to spend the said sum, as nearly as practicable, for the encouragement and advancement of agriculture and horticulture throughout the United States through the systematic introduction of new, rare, or uncommon seeds, bulbs, trees, vines, cuttings, and so forth; in the establishment of new or the improvement of existing plant

industries; in collating, digesting, reporting, and illustrating the results obtained through the testing and distribution of new and rare seeds, bulbs, and plants herein provided for. And the Secretary of Agriculture is further directed to purchase such new and rare seeds, bulbs, plants, vines, and cuttings at public or private sale, and to arrange for the propagation, testing, and distribution of such seeds, bulbs, plants, and cuttings in such manner as he may deem expedient, obtaining, as far as practicable, the advice and cooperation of Senators, Representatives, and Delegates in Congress: *Provided*, That such seeds, bulbs, and plants shall be distributed to actual experimenters only for experimental tests, and that the Secretary of Agriculture shall cause a record to be kept of all persons to whom seeds, bulbs, or plants are sent, in order that reports on the results of the experiments may be secured in as many instances as possible: *And provided further*, That the Secretary shall, so far as practicable, cooperate with the State experiment stations and practical farmers, fruit growers, and others, in order that the seeds, bulbs, and plants may be distributed with due regard to their adaptability to the various soils and climatic conditions prevailing in the United States. The Secretary of Agriculture is hereby also directed to prepare annually a report showing what the results of the distribution have been.

Mr. LAMB. That accomplishes just two purposes of change. In the first place it confines your work to rare, new, and uncommon seeds, and in the second place it relieves the Representatives and Senators of the burden of the distribution. You take that on yourselves?

Mr. GALLOWAY. Yes.

Mr. BROOKS. And it enables the Department to do that with the cooperation of Members and Senators.

Mr. GALLOWAY. We assume, for instance, that Mr. Brooks will give us the names of 100 farmers in his district, with whom we can cooperate in growing certain kinds of crops. We may not accept all those after we get into correspondence with them, but we make a selection of them, and we make for them an actual demonstration of what can be done, and publish the results if they warrant publicity.

The CHAIRMAN. Before you leave that phase, Doctor, where would you propose under that paragraph to make your experiments?

Mr. GALLOWAY. We would make them wherever the climatic and soil conditions would offer the best advantages. In that connection we frequently find it necessary to cooperate with the individual farmer or fruit grower, for the reason that his conditions may be just what we want to bring out the point we wish to demonstrate. At the experiment stations the conditions may be such that we could not get the best results. At the same time many things could be done at the experiment stations. The individual farmers or fruit growers, however, are the men we are anxious to cooperate with. That is the way we handled our durum wheats. We secured the names of individual farmers, and through them the work has grown until now we produce 50,000,000 bushels of this wheat in that semi-arid region out there.

Mr. CANDLER. This would eliminate the burden of distribution from the Members. They would simply give you names and you would correspond with the parties, and if, after corresponding with them, you believed it profitable or practicable to have cooperation with them, you would send them sufficient seed to make the experiments?

Mr. GALLOWAY. Yes, sir.

Mr. COCKS. Are there any experiment stations close to the Atlantic coast, within 20 or 30 miles of the coast in the north temperate zone?

Mr. GALLOWAY. No, sir; I believe not.

Mr. HAUGEN. Doctor, is not this practically duplicating the work that is now being done by the experiment stations?

Mr. GALLOWAY. No, sir.

Mr. HAUGEN. As I understand, in traveling over the West you are introducing various new seeds?

Mr. GALLOWAY. It is duplicating in a measure, but the fact that we might be able to develop, for example, a type of seed in Minnesota that would be valuable for some other State, say Wisconsin, than has been developed in Wisconsin, shows that it is a useful thing.

Mr. HAUGEN. We have an experiment station in each State, and I presume each State is experimenting on everything that would be of interest to it.

Mr. GALLOWAY. We are proposing to cooperate with the experiment stations in all this work so far as is practicable.

Mr. BROOKS. In cooperating, you do not mean to use the experiment stations as the conduit or medium by which you come into contact with the farmer?

Mr. GALLOWAY. No, sir; not necessarily.

Mr. BROOKS. For instance, see if I have got your idea: If you were experimenting with corn, would you propose that the experiment station conduct a series of experiments for the farmer, or would you do your own experimenting for him and test the corn for him? Coordinate with that, you would get in touch through the Members and Senators who selected farmers of their districts and States?

Mr. GALLOWAY. Yes. In Iowa, where Professor Holden, for example, is working in connection with the improvement of corn, he might secure for us certain types which we could in our cooperative way send out to farmers throughout other States.

In reference to lines of work which might be carried on in this way, I have with me outlines of a number of projects. I may say that the Department has been doing this kind of work for a number of years, as is well understood by the members of this committee. The amount annually appropriated for foreign-exploration work has been increased from \$20,000 to \$37,780. In addition to this we have expended annually about \$63,000 in the purely demonstration work and the upbuilding of new industries. In order that this work might be systematically carried on we have, as has been done with all the other work of the Bureau, divided the lines of investigation into various projects, each of which is specific and each of which shows on its face, I think, the value that would result to the country by carrying it out.

The following is a brief outline of some of the projects proposed. In each case a map of the United States is submitted with the project, which further explains the scope of the work. As stated, from 73 to 75 of these projects or plans have been developed, some of which are already in operation. Those now started could be materially extended with advantage to the country:

(1) *Extension of Arabian alfalfa in the Southwest.*—This work would be carried on in California, southern portions of Nevada, southern portions of New Mexico, Arizona, and extreme western Texas. This new Arabian alfalfa was discovered a few years since in eastern Arabia, and tests have shown that it has promise of great value in the southwest portions of the United States. The project would have for its object the further securing of seed

and the accumulation of a sufficient supply for thoroughly testing it in the territory indicated. It is estimated that this work would cost about \$3,800.

(2) *Extension of alfalfa growing into States where not now a staple crop.*—This work could very profitably be carried on in the States of Ohio, Pennsylvania, West Virginia, Virginia, Maryland, Kentucky, Tennessee, and North Carolina. The great superiority of alfalfa over other forage crops makes its introduction into any section of considerable moment. The plan has for its object the introduction of the best types of seed and the encouragement of small demonstrations with individual farmers to determine the best methods of growing the crop under varying soils and climatic conditions.

(3) *Extension of cold-resistant alfalfas.*—This work is planned for the northern portion of Montana, for North Dakota, Minnesota, Wisconsin, northern Michigan, and the northern portion of South Dakota. Alfalfa, as it is known, is a suitable crop for most of the Great Plains area, and wherever it has been introduced in this section it has practically revolutionized agriculture. Unfortunately, the severe winter temperatures incident to North and South Dakota and to the other States mentioned have greatly retarded the progress of the introduction of ordinary alfalfa in these sections. Some promising hardy type alfalfas have already been secured, as the Grimm alfalfa, Turkestan, etc. The production of seed of these types and their introduction and testing would be a part of the work.

(4) *Extension of dry-land alfalfas.*—This work would be carried on in the western portion of South Dakota, Kansas, Nebraska, the Panhandle of Texas, eastern Colorado, and eastern Wyoming. The plan would be to introduce, disseminate, and encourage the growth of drought-resistant types of this crop over this extended area. Already promising results have been secured in a limited way.

(5) *Distribution of new varieties of cotton.*—This work would be applicable to the whole of the cotton-producing States, and would have for its object the securing of new types of cottons developed by individual farmers throughout the South to a high state of productivity, and the distribution of special types being bred by specialists in the Department. This work has been going on for some years and very satisfactory results have been secured. Unquestionably one of the most valuable fields for work to-day is in the improvement of types of cotton for the South. This is especially necessary wherever the boll weevil has come in or is coming in. Early maturing types are absolutely essential for this territory. The improvement of the staple, increased production, storm resistance, and many other qualities can be developed.

(6) *Introduction of a matting plant and its growth in the United States.*—We import about \$5,000,000 worth of matting from foreign countries. It is believed that most of this material could be made here if the raw material could be grown. There is plenty of land in the States of Texas, Louisiana, Mississippi, Alabama, Georgia, and North and South Carolina which is adapted to the growing of this crop. It is important to introduce the best kinds of matting plants from abroad and to establish the growing of the crop here. It is also important to improve our own native farms for this purpose.

(7) *The improvement of coupeas.*—This work would be applicable to all of the South Atlantic States and also the States of the Middle and Central West. The object would be to secure and introduce new and improved varieties of this crop, especially such as will permit harvesting the seed by machinery, as this will greatly reduce the cost of the work. Furthermore, the plan would be to determine the best varieties for each section of the country; also to push the cultivation of the crop northward.

(8) *New tobacco varieties.*—This work would have for its object the securing and distribution of carefully selected seed of foreign-grown varieties of tobacco, such as Sumatra, Cuban, and Turkish; also the distribution of the seed of varieties of tobacco produced by the investigators of the Department of Agriculture; also the introduction of improved established varieties into sections where tobacco is not now grown, but which seem adapted to its culture on account of climatic and soil conditions. The work would be applicable to nearly all of the New England States, with the exception of Maine, to New York, portions of Pennsylvania, Maryland, Virginia, Tennessee, Kentucky, Ohio, Illinois, Missouri, Michigan, Wisconsin, Louisiana, and eastern Texas; also to certain regions in the Western States, such as Idaho, Nevada, California, and Washington.

(9) *Introduction and testing of alkali-resistant crops.*—The map shows the important alkali areas in the United States; the black which is on the red spots

indicates the location of the proposed testing stations. The object of the work would be the introduction and testing of crop plants that give promise of utility for alkali soils, such as annual leguminous forage crops, all available strains of alfalfa, native forage grasses, varieties of wheat, oats, barley, rye, and sorghum. Already some promising results have been secured in this field in a limited way.

(10) *Grains for high altitudes.*—The application of this work would be in the great plateau region of the country, namely, portions of Montana, Idaho, Wyoming, Utah, Colorado, New Mexico, Arizona, and a small portion of the Panhandle country; also the southern portion of Nevada. The immediate needs of this work would be the securing of special crops for these high altitudes. So far very little has been done in the way of introducing special crops for these plateaus. A study of the crops of central Asia has shown the existence of barleys and other grains now successfully grown at altitudes of 10 to 15,000 feet which should be introduced into our own mountain areas, where the altitudes on the average are considerably less. It is planned to have an exploration made of this great region of central Asia and to introduce and test in this country promising crops from this section.

Some of the things that we are already on the track of or have obtained are the naked oat from Russian Turkestan; various hull-less barleys from Chinese Tibet and Chinese Turkestan; wheat, barley, and peas raised by the Kargan Tibetans; barley and wheat from eastern Tibet, where the temperature during the growing season falls to 8° or 10° C. below zero at night; rice, cotton, and maize from various portions of Chinese Turkestan; hull-less barley from the province of Kansu, and glutinous rice from Hanchong, northwestern China, etc.

(11) *Adaptation of winter oats.*—This work would be confined to practically all of the Southern States, with the exception of extreme southern Florida and western Texas. It would also include southern portions of the States of Missouri and Illinois. Its object would be the introduction of hardier varieties of winter oats for the entire region. The oat is the most important grain crop in the South, but the yield is only a fraction as large as it could be, on account of the great amount of winterkilling. Winter or cold-resistant types are the kind that should be developed and distributed.

(12) *Sugar-beet seed growing.*—Practically all of our sugar-beet seed now comes from abroad. Preliminary experiments and tests have indicated that we can grow as good or better seed in this country as anywhere in the world. The object of the work would be to produce and distribute commercial sugar-beet seed with the primary object of developing a new American industry, namely, the production of our own sugar-beet seed. It must be determined first in what localities the sugar-beet seed can be produced successfully, and second, the beet itself must be improved in size and quality through the selection and production of our own seed. The map presented shows the various stations at which the work might be carried on, and would include all of the sugar-beet growing States.

(13) *The improvement of corn.*—The object of this work would be simply the breeding and selection of corn adapted to different climatic and soil conditions throughout the United States. The work would be applicable, in large part, to all portions of the United States. Corns for the extreme north; corns for the south; corns for highly fertile soils, and corns for poor, thin lands; corns adapted to river-bottom lands; drought-resistant corns, and corns that could be grown successfully under irrigation are some of the lines of work involved in this project.

(14) *Bulb growing in the United States.*—Some preliminary work has shown the practicability of introducing bulb culture in this country. Certain kinds of bulbs can be grown successfully in the South, and the work should be encouraged. The tulips, hyacinths, and other Dutch bulbs, now almost wholly imported, might possibly be grown on the Pacific coast. This is a most promising industry, and the work would be applicable to Washington, Oregon, California, southern Texas, southern Florida, portions of South Carolina, and North Carolina.

(15) *Cultivation of drug plants.*—We import in the neighborhood of four or five million dollars' worth of drugs each year, and preliminary investigations would indicate that a considerable portion of these drug plants might be grown at home. The work would be applicable to nearly all of the States bordering on the Atlantic Ocean and also some of the Western States, such as Ohio, Indiana, Illinois, Wisconsin, and northern Iowa. The object would be to introduce the seeds of the promising drug plants and encourage the production of the crops, this being in cooperation with individual farmers and others.

(16) *Dry-land arboricultural work.*—This work would have for its object the introduction and testing of tree-like plants adapted to the great dry-land sections of the Southwest. It would include, first, breeding, propagating, and testing deep-rooted and drought-resistant trees and shrubs adapted for culture in dry-land regions, with special reference to the introduction and propagation of new varieties of the date palm, and, secondly, the introduction of promising trees and shrubs from the deserts of Mexico, South America, Africa, and Asia with a view to securing stocks for breeding, selection, and propagation. There are many such dry-land plants, dry-land olives, dry-land pistachios, date palms, and many other crops that ought to be introduced into this southwestern country and which could be introduced and tested were proper means at hand.

(17) *Introduction of hardy apples for the apple breeders.*—This work would be applicable to the entire tier of Northern States from Maine to and including Montana. The object would be to find out through a study of published accounts of travelers and explorers where in different parts of the world are to be found apples, or forms related to them, which are likely to be valuable in the breeding of hardier and more drought-resistant varieties of apples for this northern country. This work would be done largely in cooperation with experiment stations.

(18) *Introduction and breeding of new citrus fruits.*—This work would be applicable to the southern half of the States bordering on the Atlantic and the Gulf of Mexico. It would also be applicable to the southern half of Texas, Arizona, New Mexico, practically the whole of California, and a considerable portion of Washington and Oregon. It would have for its object the introduction and investigation of hardy citrus fruits, with special reference to testing and propagating forms better than those now cultivated, the securing of hardy citrus fruits, both by selection and breeding and from the introduction of new citrus stocks. Considerable work has been done along this line, and the Department has now distributed some of the types which were originated several years ago.

The foregoing types are selected at random out of the list given. Others could be given, but it is believed these will suffice to indicate the general lines. As an additional and important piece of work, a project having for its object the aiding and benefiting of truck growers along the Atlantic coast is under consideration. Aid could be furnished the truck growers through the development of better types of vegetables, the improvement of existing types, and the securing and distribution in a limited way of promising things from home and abroad.

Mr. HAUGEN. What about this corn [indicating sample]?

Mr. GALLOWAY. That is a sample of Minnesota corn.

I have here a little map which shows an outline of our proposed work on dry-land alfalfas. We have been working for some time on the matter and securing alfalfas for dry lands.

The CHAIRMAN. You mean for arid lands?

Mr. GALLOWAY. Yes, sir. This is arid country [indicating] marked by these stars here. We have secured some of these alfalfas from abroad and have secured others as the result of the investigations of our experts here at home, who have found these alfalfas that have escaped and have been growing wild above the ditches in the West and by survival of the fittest have established themselves as dry-land crops. It is desirable to make a demonstration of the possibilities of these crops in the dry-land area, and these photographs [submitting same] show the root capacity of the crops grown on the same soil.

The CHAIRMAN. What results have you obtained with these experiments?

Mr. GALLOWAY. Very meager results, because the work has just been inaugurated. These are projects, you understand, that could be carried out under this plan [presenting other outlines of projects].

The CHAIRMAN. I see.

Mr. GALLOWAY. Here [indicating] is a project for extending the growth of alfalfa into the Eastern States. There are many questions pertaining to the kinds and types of alfalfas adapted to the soil of the different States.

Mr. CANDLER. Have you made any test of alfalfa in the Southern States?

Mr. GALLOWAY. Yes; we have been doing some work there.

This is a plan [producing same] for the extension of alfalfas in cold countries. We have secured a few types growing here and there in this region [indicating] which we are endeavoring to propagate and have tested, believing that if we can develop this alfalfa in this country it will benefit the agriculture of the entire region.

Mr. BROOKS. That same sort of alfalfa would do also for high altitudes, would it not?

Mr. GALLOWAY. Yes, sir. Here is another project to grow crops on alkali soils.

Mr. COCKS. They ought to have a few spots in Kansas.

Mr. GALLOWAY. Other branches of the Department have for some time been investigating these alkali regions, and we have been interested in crops that will grow on alkali land. This work [indicating] is the introduction of alfalfa on alkali soil. We already have alfalfas from the Sahara region that grow in soil containing a large percentage of alkali, where any ordinary kind would die.

Mr. BROOKS. One and one-half per cent is absolutely prohibitive?

Mr. GALLOWAY. Yes.

Mr. BROOKS. I want the committee to understand that, because thereby hangs a tale by and by. Your work concerns alkali-resisting properties?

Mr. GALLOWAY. Yes.

Mr. BROOKS. You are not touching two other phases of that work—first, drainage, and second, the proper use of surface water to prevent the accumulation of alkali?

Mr. GALLOWAY. No, sir. The farmer may have proper drainage and water; but if he is on alkali soil the question arises, what kind of a crop can he grow on that soil most profitably? We go to him and suggest that he grow some of these alkali-resisting plants which we have been testing. I have some photographs here [producing same] showing the growth of these crops on alkali land.

Mr. BROOKS. And there is a wide difference between those resistant even in the same crops?

Mr. GALLOWAY. Yes.

Mr. BROOKS. They tell me there are sugar beets that will stand 1 per cent.

Mr. GALLOWAY. We have some evidence that there are.

Here is a project for cold-resistant apples. Here is a work [presenting same] that has for its object the adaptation of grains to high altitudes. We have many farming regions at high elevations, and we have good land and good farmers there, but the altitude prevents them from growing certain kinds of crops. We have been introducing from certain places and breeding certain crops that will grow at these high elevations. We have evidence that in the plateau region of Asia there are types of grains of various kinds and many

fruits that would be appropriate to this plateau [indicating on diagram]. We want to get our explorers into these regions and secure the promising things there for our high plateaus.

We import every year \$500,000 worth of sugar-beet seed, when all that seed could be grown in this country. We have already grown some. We have pointed out and proved that we can grow in Washington State seed of much higher sugar content than that which we bring from abroad. We are sending out this year some samples of sugar-beet seed that will go as high as 20 per cent sugar on the average and some that will go as high as 23 and 24 per cent. An agent that we have in Washington State will grow 165,000 pounds at an average of 20 per cent.

Mr. BROOKS. The average for the country is 9.8.

The CHAIRMAN. How are you getting along with that single germ?

Mr. GALLOWAY. We have now some beets that will give us 35 per cent of single-germ seed.

Mr. BROOKS. Have you any figures as to what it would mean to the sugar growers if you could increase the average sugar content 1 per cent?

Mr. GALLOWAY. It would mean nearly \$1,000,000 for Colorado alone.

Mr. BROOKS. Roughly, it would be about \$3,000,000 to the sugar growers of the United States if you could increase the content 1 per cent?

Mr. GALLOWAY. We can grow as fine seed in Colorado and other places as that which we import. The seed grown in Washington State would perhaps not be as well adapted to the soil conditions as that grown somewhere else. The only difficulty about growing seed in the eastern United States is in the harvesting of the same.

Mr. LAMB. You can grow good seed in Virginia—

Mr. BROOKS. And I doubt if you can not grow sugar beets in Virginia.

Mr. GALLOWAY. There is a project for growing bulbs at home. Practically all of our bulbs are grown in Holland. We can grow them on the Pacific coast and in the Southern States, and there is no reason why we should not develop this industry here. We are already growing, in a trial way, some of these bulbs, and the difficulty heretofore with the Pacific coast bulbs has been the cost of freight. Heretofore we could buy bulbs in Holland and send them to Chicago, for example, more cheaply than they could be bought in Washington State and sent to Chicago.

Another line of works is the introduction of hardy citrus fruits. When we had that great freeze in Florida some years ago the whole citrus industry there probably went out of existence. Since that date we have been breeding cold-resistant fruits. We have developed them only in a very limited way thus far because of lack of funds, but these hardy oranges are as safe now in South Carolina as the old citrus trifoliate, the Japanese type, which was one of the parents. These hardy fruits were obtained by crossing a Japanese nonedible variety with the edible orange. We have sent out four different types. None of them are entirely sweet, but all of them are valuable for marmalade and preserves.

Mr. BROOKS. That particular work is almost entirely in the Southern States, is it not?



Mr. GALLOWAY. Yes, sir. Here is a line of work entirely in the Southern States; it is in connection with our improvement of cottons. Here we have one of the finest fields for work. We have been breeding types for different sections, and have been distributing for the last four or five years types superior to the ordinary kinds.

The CHAIRMAN. All this, as I understand it, Doctor, is an extension of what you are doing now in a small way?

Mr. GALLOWAY. Yes. This is a proposed enlargement of our present projects, with some new projects added. Here [submitting outline of project] is another important project for the Southern States, and that is on the question of cowpeas. The cowpea is one of the most valuable crops of the South, and its improvement means better farming generally.

Mr. LAMB. Can you do all this with \$242,000?

Mr. GALLOWAY. We can do a good portion of it. We have laid this plan out to cover most of the projects here outlined. You will see the cost of each one at the bottom of the page. The 76 projects amount to about \$300,000, but we can take off a project here and there if necessary.

We have now developed and elaborated about 76 distinct projects, as I said, with the machinery and men for carrying them on. To conduct all this work would require more funds than the total appropriation here asked for, but in view of the fact that the projects are arranged as projects, we could bring them within the scope of the present appropriation, although we believe that additional funds could be used to good advantage.

Now, the question will naturally be asked, In what manner would these different lines of work be conducted, and in what way would they benefit the districts where the seeds and plants might be sent? Some of this work we have pointed out would be done through individuals secured directly by the Department, and a considerable portion would be done through individuals secured as a result of the advice and cooperation of the Senators and Members, who know the individual needs of their constituents and districts. I have cited our present tobacco work as an example of the manner in which all of these lines of investigation would be carried on, with such modifications as the exigency of each case might require. Under the old plan, as indicated, it was customary for the Department to go to the trade and simply purchase a certain number of pounds of the different varieties of tobacco offered by tobacco-seed growers. No special effort was made by these growers in the matter of developing types. In fact, the Department secured just the ordinary everyday seed used by the majority of small growers. Three or four years ago the Department entered upon a critical investigation of tobacco types with a view to the breeding and selection of those which would be better adapted to existing conditions in the different sections. This work has been in charge of one of our ablest young men and has been quite successful in a number of sections. High-grade types of tobacco have been developed by breeding and selection, which make it possible for practical growers to realize much more from their crops than they have ever done before.

It is this carefully and scientifically selected seed which the Department is now sending out to the different tobacco-growing sections which have, up to this time, been studied. Instead, however,

of assigning each Member in the tobacco districts a certain number of packages, at the end of the season and with a knowledge of the value of the types we have and what the types are, we ask the Members who have constituents capable of taking hold of this matter to furnish us with a certain number of names of reliable parties with whom we could get into correspondence. We take up the matter with them in a careful way, go over the ground, confer with them relative to their soil conditions, and supply them with sufficient seed to make a demonstration and comparison with the seed that they are already using. This correspondence is always conducted in such a way as to shift to the Department the responsibility for not being able to supply seed to everyone.

This, in brief, would be our general plan for handling all of these projects. In the matter of work on dry land alfalfa, for example, it is our desire to introduce these alfalfas into the drier sections of the United States—namely, the Panhandle of Texas, western Kansas, eastern Colorado, western Nebraska, eastern Wyoming, and western South Dakota. We could secure the names of a sufficient number of reliable men in these districts to enable us to start the work, and if it were successful the Member through whose instrumentality the work was inaugurated would, of course, get the credit therefor.

By the plan here proposed Senators and Members would be relieved of all the necessity of distributing each year a certain specific number of packages. They would be relieved of any criticism that might be made on the ground that because Mr. A. secured this thing Mr. B. ought to have a supply also. They would, instead, be equally instrumental with the Department in introducing new and valuable industries in their respective districts and the upbuilding of agriculture therein.

Mr. FIELD. When will you get your reports with reference to improved cotton? When will you receive reports with reference to this year's experiments?

Mr. GALLOWAY. They are coming in now. For example, this year in Texas we have a cotton which has been bred from the Triumph, with which you are familiar, probably; an early cotton that is ten days earlier than the Triumph, just as prolific and with just as good a staple, and just as storm-proof.

At the experiment station in Texas there are some entirely distinct types which have been developed by Professor Bennett. They are dwarf, prolific, and early.

Here is another proposition [submitting same] for the crops in the semiarid region in the West. Here also are some samples of American dates grown out in the West. We have now at Tempe, Ariz., an experimental date orchard, which this year gave us our first yield of fruit. The fruit matures early and is just as good as the best fruit from Arabian and Egyptian trees. This particular tree here [submitting photograph]; you see how it bears fruit. That is a date [submitting boxes of fruit], a date that sells for 50 cents a pound. That tree is making more suckers, and we are disseminating it as fast as we can. We have also a date farm at Mecca, Cal.

Mr. BROOKS. These are the Tempe dates?

Mr. GALLOWAY. Yes, sir. They look dry, but they are good. This is about a third quality of date. Of the best types I do not happen

to have any samples, but the State experiment station is putting up these sample boxes and selling them.

The CHAIRMAN. As I understand it, Doctor, they are a good commercial proposition?

Mr. GALLOWAY. Yes, sir; they are.

The CHAIRMAN. That is a very sweet date that I got hold of.

Mr. GALLOWAY. The so-called Deglet Noor date is of finer quality and is sold only in the finest markets of the world, but we have plants started here. We sent one of our men to the Sahara, and he brought them out. These dates, you understand, grow from suckers and do not come true from the seed. The first plants that we got were evidently seedlings.

Mr. BROOKS. These trees will grow with very little water?

Mr. GALLOWAY. Yes; and in alkali soils, and the hotter it is the better they will grow.

We import every year from Japan and China \$5,000,000 worth of floor matting. It is made of an aquatic plant like a rush. The matting is all made in Japan and China by hand. We have been for three or four years encouraging manufacturers here to develop a machine that will weave this matting. There are machines now that can make as much matting in a day as thirty Japanese can make by hand in a day. All that is necessary now is to have the raw material. The best raw material is grown in Japan, because they have been growing for ages this rush and selecting it for the particular purpose of making matting. We have rushes of this sort in our swamps, but they are not selected properly or specialized. We tried to select and import plants from Japan, but found that the seed did not come true to the type.

Mr. COLE. Where is this manufacturing plant?

Mr. GALLOWAY. One is in Maine and one is in Boston.

Mr. COLE. I was through that one in Massachusetts last summer during the campaign.

Mr. GALLOWAY. What we want is raw material, and the abandoned rice lands in South Carolina and elsewhere are suitable for growing the rushes.

Here is another project [submitting same] on improved corn. That is a line of work that covers practically the whole country, to develop and breed these new corns. For instance, here is a corn—the increase of yield is marked on the label—and by the breeding work they are developed up to the point you see marked on them [submitting specimens]. In corn beauty and shape do not necessarily include productivity. A farmer may secure a large, beautiful ear of corn, but it may not have the inherent quality of reproducing itself.

Mr. LAMB. Is this Kentucky and Tennessee corn the corn you sent me?

Mr. GALLOWAY. I do not think it is.

Mr. LAMB. You sent me some just like this, and I never saw such an improvement. It was a barrel or two to the acre more.

Mr. GALLOWAY. I have now given you an idea as to what the nature of this work would be, and in what manner we would introduce it into different parts of the country. I have endeavored to make the matter plain, and if I have not it is my own fault.

The CHAIRMAN. The Department's idea is that this would be of much greater benefit to the country at large than the free seed distribution?

Mr. GALLOWAY. Yes, sir.

We have other projects involving the production of drug crops in the South—camphor, etc. The camphor work is pretty well on its feet. We have demonstrated the practicability of growing camphor, and a firm is going to establish a plant in Florida.

Mr. BROOKS. Hitherto we have got all our camphor from the island of Formosa?

Mr. GALLOWAY. Yes.

The CHAIRMAN. Is there any chance within the bounds of our country of growing camphor?

Mr. GALLOWAY. Yes; in California, and in Florida and other Southern States.

Mr. COCKS. How about Porto Rico?

Mr. GALLOWAY. It would not grow so well there, because it does not require so hot a climate. The most suitable climate is one just on the margin between the tropical and the temperate zones. A properly managed grove would yield from \$200 to \$300 per acre. We would not destroy the trees, as is usually done, but would take the prunings or trimmings from the trees and extract the camphor from them. The ordinary method is to cut down the trees and extract the camphor from the gum. We have found that we can get camphor from the twigs and branches in paying quantities.

Another question that has not yet been solved is how long the trimmings can be kept and how much they can be dried without reducing the quantity of camphor in them.

Mr. BROOKS. Would you give to the committee, just for our information, any figures, say, on three type examples? I think the wilt-resisting cotton has been introduced this way, and the seedless orange, and the durum wheat. What would be the value, agriculturally, of these three crops, just in a rough way?

Mr. GALLOWAY. About \$25,000,000.

Mr. BROOKS. Did you ever know of a practical advantage that came to the agriculturists of the country by the distribution of lettuce, radishes, onions, and beets?

Mr. GALLOWAY. You are asking me that question?

Mr. BROOKS. No; I will withdraw that. [Laughter.]

Mr. FIELD. The Department does not claim that there is a weevil-resisting cotton, does it?

Mr. GALLOWAY. No, sir.

Mr. BROOKS. In your judgment, Doctor Galloway, is there any Congressional district in this country where you can not profitably expend your energies along the line laid down here?

Mr. GALLOWAY. Not one.

The CHAIRMAN. Any Congressional district?

Mr. GALLOWAY. No.

The CHAIRMAN. Doctor, while you are here, please tell the committee what you have done along the life of this emergency appropriation for the cotton boll weevil. What advance have you made on that?

Mr. GALLOWAY. The cotton work under the emergency item has been carried on, as usual, under a number of heads. The first is the

work in connection with the farmers themselves—what we call our farmers' cooperative work. That work is in charge of Doctor Knapp, whose headquarters are at Lake Charles, La. The general plan is to get directly in touch with the individual cotton grower to convince him that he can improve his condition and grow cotton despite the presence of the weevil. We are working in Texas, southern Arkansas, Louisiana, and Mississippi in that direction. We must always work a little ahead of the weevil, and must continue to work for a certain number of years in a region after the weevil has invaded that region. By and through this work we are in touch now, directly and indirectly, with about 100,000 farmers, who are farming differently from what they have ordinarily farmed, modifying their methods and diversifying their crops so as to have other things to fall back upon in case they fail in cotton. We have under Doctor Knapp 30 or 40 practical men who can reach the farmers and give them information as to how to do this work. Sometimes we furnish seed.

The farmer agrees to fall-plow, cultivate, and plant in accordance with our suggestions, and at the end of the year to give us definite figures as to how much he grew per acre on the portion cultivated in conformity with our suggestions and how much he grew on the other area grown under the old plan. This work has extended into Mississippi, and we have reached about 100,000 farmers, as I said a moment ago. It is simply demonstration work.

Another line of work has for its object the securing and developing of new types of cotton which will supplant the old types in the boll-weevil districts.

The CHAIRMAN. Resistant to the boll weevil?

Mr. GALLOWAY. No; they have little or no resistance, but they have other qualities which enable them to produce cotton despite the weevil; for example, early maturity.

The CHAIRMAN. You know we produced in the early days what was called the Mediterranean red wheat, which was a weevil resistant?

Mr. GALLOWAY. Yes. Down in Guatemala, where the cotton has been growing for thousands of years, and where the boll weevil has been for thousands of years, there is evidence of certain resistance, but it comes chiefly from the ability of the plant to make a crop before the weevil comes. The real harm to the cotton comes when the boll weevil becomes so abundant as to puncture many of the squares and bolls. When it becomes so abundant, you might as well let the cotton go. Most of these early cottons have laid on their bolls by July or August, so that the weevil does little harm. We have cottons in Texas which in staple and in every other way are superior to other types of cotton, and will mature their bolls very early in the season. These cottons have earliness, productivity, storm resistance, etc.

So much for the breeding work. In addition to this and the farmers' cooperative work, we have taken up several other problems. We have been studying the root-rot disease of cotton, which is a very serious one throughout the South, and we have also carried on extensive investigations in connection with studies of systems of farm management and the encouragement of diversification through the establishment of demonstration farms, which have cost nothing except the time of our experts who are looking after them. We

have 25 or 30 of those farms now in the Southern States. These farms are simply object lessons and must be money-making to have value. Those are the chief lines of work we are doing under this emergency fund.

The CHAIRMAN. It strikes me, Doctor, we ought to do away with all these experiment stations and devote all the money here to doing practically all the work they ought to have done but did not do.

Mr. LAMB. When are you going to find a cotton resistant to the boll weevil?

Mr. GALLOWAY. I do not think we shall find it.

The CHAIRMAN. It runs away in order to fight another day. It gets out of the way whenever you attack it.

Mr. GALLOWAY. This fall I was in Texas, and we had a meeting in Waco, and we had at that meeting about seventy or eighty farmers from Texas, Oklahoma, Arkansas, and other Southern States. There was present also a representative of the railroads. He came for information, but he had gathered statistics of cotton from the chief boll-weevil districts of Texas, along the Texas Central Railway. This gentleman read the names of towns and the number of bales of cotton sent from each for the past four years. The figures indicate that the first year the weevil strikes a place the farmers lose courage, but later they take heart and then produce more cotton than they did before the advent of the weevil.

The CHAIRMAN. You attribute that to improved methods?

Mr. GALLOWAY. Yes, sir.

Mr. FIELD. Don't you think you are laying too much stress upon these improved methods and cottons, and lose sight of the fact of different seasons, year after year, in their effect upon the boll weevil? Do you claim as to this year, which was favorable to the boll-weevil section, that that improvement was due largely to improved seed and methods of cultivation and the adoption of early maturing varieties? Do you attach more importance to that than the season that prevailed and the early drought?

Mr. GALLOWAY. The seasons were excepted. In some sections they had one thing and in others they had another kind of weather.

Mr. FIELD. Up along the Brazos and many other sections of central Texas the season was a favorable one—that is, it was a dry, early season, and the boll weevil did not develop as rapidly, owing to the drought.

All the cotton had an opportunity to develop more rapidly under those conditions, and it attained most of its fruit by reason of its not being assailed by the boll weevil. While I agree that much is due to early varieties and cultural methods, yet I am afraid you are attaching too much importance to those things to the exclusion of the season that prevails. I believe if we had had a wet June in spite of all our efforts we would have lost all our crops.

Mr. GALLOWAY. Several years ago I was in Texas and we had a meeting of the farmers, and it was a very enthusiastic meeting, as to what had been accomplished by cultural methods and so on. We had a good chairman and he was trying to bring out the advantages of the work he was doing and it was sort of a lovefeast. Everybody was saying what good had been accomplished by these new seeds and by these cultural methods. Along in the afternoon one farmer

got up and said he had listened with great interest to the talk; "but," he said, "gentlemen, I think you have forgotten one thing and I want to introduce a resolution that we thank the Good Lord for a good season that has enabled us to grow cotton." Of course there is something in that. But taking the average and following the country up where the weevil has appeared they are getting back their nerve, and if they do not grow cotton they are growing something else.

The CHAIRMAN. Do you attach credit to the experiment farm?

Mr. GALLOWAY. Yes.

The CHAIRMAN. Has the boll weevil crossed the Mississippi yet?

Mr. GALLOWAY. No; but it has reached points within 20 miles of the river.

The CHAIRMAN. Do you know whether it has gotten in the Kansas district?

Mr. GALLOWAY. No; it has not reached Kansas.

Mr. CANDLER. I was going to ask whether it had appeared in Mississippi?

Mr. GALLOWAY. I had a letter from an officer at the experiment station, and they are making great efforts to prevent its introduction—

Mr. CANDLER. Do you think it would be advantageous to enlarge your operations in this line as to the experiment farm?

Mr. GALLOWAY. You mean as to the demonstrative work?

Mr. CANDLER. Yes.

Mr. GALLOWAY. Yes; I believe it would be an advantage. I may say that the Southern Educational Board investigated this work last year and looked into the method of reaching the farmer, and they were so well satisfied with it that they are putting \$25,000 into the work this year. That money has been spent by the board, but under the direction of Doctor Knapp.

The CHAIRMAN. I should think these new cultural methods should be adopted ahead of the weevil?

Mr. GALLOWAY. It is pretty difficult to get them adopted ahead of the weevil.

The CHAIRMAN. I should think that would be the greatest check to the weevil and that it would retard his march.

Mr. CANDLER. This proposed plan you suggested a year ago in reference to the money to be applied to the seed proposition; have you now the facilities to do that kind of work?

Mr. GALLOWAY. Yes; we have the machinery all ready. We are spending now about \$37,000 in the foreign work and about \$63,000 in the other work. We have been gradually developing this machinery.

Mr. CANDLER. You could do both kinds of work right along together as you have been doing heretofore?

Mr. GALLOWAY. Yes.

Mr. CANDLER. And you have this amount of money you suggest, and you propose to do this special line of work; you can carry that work on and still do the general distribution as it has been done before.

Mr. GALLOWAY. Yes.

Mr. CANDLER. We had some controversy here the other day as to the exact amount expended for this general distribution. My recol-

lection is that there is only about \$63,000 that is invested in seed for general distribution.

Mr. GALLOWAY. Yes; it cost from \$132,000 to \$140,000 for all the work, including seed and everything.

Mr. CANDLER. The seed themselves cost about \$63,000?

Mr. GALLOWAY. Yes.

Mr. CANDLER. And then the work in connection with putting it up amounts to about \$132,000?

Mr. GALLOWAY. Yes; it will be a little bit more this year because seed costs more; it ranges between \$132,000 and \$142,000 every year.

Mr. CANDLER. I am willing, so far as I am concerned, to join thoroughly in this experiment work, but I must confess I am not willing to leave the other off.

Mr. LAMB. With this proposed work what becomes of the flower-seed distribution.

Mr. GALLOWAY. The flower-seed business would be left off the same as the other, of course. I might add that it would be advisable from time to time to introduce in this way the novelties in flower and vegetable seed the same as in the other things. There are novelties, of course, in flower seed and vegetable seed, just as valuable to introduce as some of these cottons and corns.

Mr. COCKS. I do not see that you have made any suggestion for the truck farmer. I suppose he would come in somewhere?

Mr. GALLOWAY. He would naturally come in on some of our work. I have only spoken of about one-third of the projects that we have. We have a truck project now, but it is applicable at this time mainly to the South Atlantic States. We are planning cooperative work with the experiment station at Norfolk, Va. The station has been established by the State of Virginia, but we are going to furnish men to carry on some of the work there.

Mr. SCOTT. It may be that the matter I wish to inquire about has been gone over, but I would like to inquire whether if the Congressional free-seed distribution was discontinued the Department would get an advantage in addition to the amount of money involved by reason of setting free more time and brain force on the part of valuable men in your Department, which now has to be directed toward the routine and details of work that really accomplishes nothing; would there be any advantage in addition to the financial gain?

Mr. GALLOWAY. I think there would be an advantage in that respect because necessarily we must maintain a corps of efficient men, experts in this matter. We have four or five and a corps of office men, and it requires, I may say, at least during the Congressional season, one-fifth or one-fourth of my time to look after these things. Of course it would require just as much or more of my time in this other work.

I perhaps might add that many Members who have handled these special seeds and plants through the Department understand that it has always been our policy in the Bureau to give specific and personal attention to these matters, so as to relieve the Members themselves of any embarrassment; that is, we have, I suppose, in the course of a year, many thousand requests for things that can not be furnished, but we always write a personal letter taking the responsibility and putting the responsibility on the Department for the nonfurnishing



of those things if they are things that can not be furnished. So it would be with this work. It would be largely a matter of personal correspondence between the Department's officers and representatives or cooperators who might be referred to us by the Members, and we have never yet had an instance—I do not recall an instance—of a complaint from anyone in the country who has thought that he has not been fairly treated by the Department or by the Member when these things were referred to us. So if there are any doubts in your mind as to that matter I want to say that as long as I am charged by the Secretary to look after the work I trust I shall be able to do so to the satisfaction of the Members, as I have tried to do with this other matter. I have tried to handle that work in such a way that it would bring credit to the Department and no trouble to the Members.

Mr. CANDLER. You have always been exceedingly kind to us on that line, I am sure.

Mr. HAUGEN. If this plan of yours were adopted, it would practically do away with the distribution of common seed?

Mr. GALLOWAY. Yes.

Mr. HAUGEN. Flower and garden seeds?

Mr. GALLOWAY. Yes. As I indicated a while ago, the first thing about it would be the abandonment of the free distribution of ordinary seed; and, in the second place, it would be the spreading out or the development of the work we are doing now under what we call Nos. 2 and 3—that is, disseminating rare and uncommon things grown in this country and disseminating rare and uncommon things secured abroad.

The CHAIRMAN. And third, the Department thinks it would be better for the whole country than this free seed distribution?

Mr. GALLOWAY. Yes.

Mr. HAUGEN. And do I not understand that to carry out this plan and also the general distribution of seed it will be necessary to increase the appropriation \$132,000?

Mr. GALLOWAY. Yes; to continue to send out vegetable seed it would require about that amount in addition to the estimates as furnished to the committee. In other words, \$232,000 to develop the plan we suggest, and then it would take \$132,000 additional to continue this free distribution of seed.

Mr. HAUGEN. I understand your proposition is to take \$132,000 that has been used for the general distribution of seed and appropriate that for rare and valuable seed?

Mr. GALLOWAY. Yes, sir. Of course this should be understood. If we had the \$132,000 to be set off by itself and could not use both forces, both organizations, it would take a good deal more, but having both I am safe in saying we could continue to do the same work for \$132,000.

Mr. HAUGEN. Your proposition, as I understand it, is to enlarge on a certain line and cut off the other?

Mr. GALLOWAY. Yes.

Mr. HAUGEN. Can you furnish an estimate of the duplication at the experiment stations, how much would be duplicated?

Mr. GALLOWAY. There would be very little duplication. Some of the stations are now working on the improvement of corn, but they are restricted to State lines. Some stations are working on alfalfa.

None of the stations of the South are doing work of the kind we have proposed.

Mr. HAUGEN. Do you mean to say the cotton-growing States are not giving attention to the growing of cotton?

Mr. GALLOWAY. They are giving attention to cotton, but it has been largely in the matter of fertilizers. None of them have done any special work in the breeding of cotton and the dissemination of different types of cotton within their respective States.

Mr. HAUGEN. And nothing has been done as to the cotton-boll weevil?

Mr. GALLOWAY. The States themselves have expended most of their energy and money appropriated in quarantine work and in work of that character.

Mr. SCOTT. Do you know, Doctor, how much in the aggregate all the cotton States appropriated to fight the boll weevil this year?

Mr. GALLOWAY. I can not answer that question.

Mr. SCOTT. Can you mention the appropriations made by some of the States?

Mr. GALLOWAY. Texas, I do not think, has appropriated anything. Louisiana has a State pest commission, and it has an appropriation of, maybe, \$15,000 or \$20,000. I do not recollect just how much it is.

The CHAIRMAN. Texas has no appropriation at all for that purpose?

Mr. GALLOWAY. No; no special appropriation for that.

Mr. SCOTT. In other words, the cotton States have practically turned this whole thing over to the General Government?

Mr. GALLOWAY. That is it.

Mr. FIELD. We could not make an appropriation for that purpose in Texas under our constitution.

The CHAIRMAN. In your investigations and studies have you ever met with anything to lead you to believe that there was a seed trust on the part of the dealers?

Mr. GALLOWAY. No, sir. We have always been able to get our seeds where and from whom we wanted them, and we never saw any evidence of a combination to prevent the Department from getting seed. I do not see very well how there could be one.

The CHAIRMAN. Then you say there is no combination that results in an increase of prices?

Mr. GALLOWAY. No, there is not.

Mr. COCKS. Where are these seeds put up in packages?

Mr. GALLOWAY. Right here in Washington. Come down and we will show you. They are all packed right here under the supervision of our own men.

Mr. LAMB. If this reform measure, so to speak, were carried out, what would become of the nice boxes of bulbs that we get now?

Mr. GALLOWAY. They would go out with the other things, except that where we are introducing new bulbs, growing them in this country, opportunity would be given to have them tested in other localities.

Mr. FIELD. What appreciation is shown by the people in response to all this general distribution of seed? What interest is manifested by reporting to the Department the results?

Mr. GALLOWAY. Out of the entire number of packages of seed that we send out I presume that of actual reports we would not get more than one-tenth of 1 per cent. I kept a record last year for two

months of the number of actual reports that came to us. A great many, of course, go to Members of Congress.

The CHAIRMAN. I do not get five such reports a year.

Mr. GALLOWAY. We get, though, from the 1st of December until the 1st of May a great many requests for seeds. We average about 1,000 requests a day during the busy season. I am referring now to the requests that do not come from Members of Congress at all. We have to file those away, because we are now sending out everything we have for distribution through the Members. We used to try to give those requests coming directly to us from the people wanting the seed attention, but we can not do it now.

Mr. FIELD. In connection with your suggestion there, would it not be well to provide that where the seed under the new arrangement was sent out and no report made that those parties not making any report on it should be stricken from your list for further distribution?

Mr. GALLOWAY. That could be made a provision, but it would hardly be necessary to incorporate it in the act.

Mr. COCKS. This is on the new proposition, I understand?

Mr. FIELD. Under the new proposition. If they do not report, the benefits are lost to the Department, and they ought not to be included in any subsequent lists for distribution.

Mr. GALLOWAY. We have received probably 85 per cent of reports on all our cotton work. In every package we have sent out in the South of these new varieties we have sent a memorandum showing what we claimed for the cotton, and we send a card for the recipient to fill out his name and address, and we receive many valuable returns and reports through those names.

The CHAIRMAN. You say, Doctor, that you receive a thousand requests a day from now to the 1st of May?

Mr. GALLOWAY. Yes, sir.

The CHAIRMAN. It seems impossible that you would receive that many.

Mr. LAMB. Does not that show that these people appreciate the free seed distribution?

The CHAIRMAN. It shows they like to get something for nothing.

Mr. GALLOWAY. The fact of the matter is that the seeds that the Members get do not begin to go around. Mr. A. gets seeds and Mr. B. hears of it, and he writes to the Member for some seed, and the Member replies that his supply is exhausted, and then Mr. B. probably writes to the Department. As I have said, we have no supply with which to furnish such requests. We reserve each year one-sixth of 1,000,000 packages.

Mr. BROOKS. I wish we could have opportunity to study these suggested plans of Doctor Galloway. I wish we could have some kind of an outline. I understand you have a good many projects there, or plans, that you have not mentioned?

Mr. GALLOWAY. Yes, sir. I only brought up with me this morning ten or fifteen of these, and we have altogether about seventy-three of them.

Mr. HAUGEN. The money appropriated for general distribution of seed is about \$1 to every \$72 recommended for appropriation by this committee, or \$1 for every \$6,400 appropriated by Congress. Now, in view of the fact that you get a thousand requests a day, do you

think it would be practical to cut out the \$132,000 appropriation, which is \$1 out of \$6,400, the total appropriated by Congress?

Mr. GALLOWAY. For the last three or four years we have simply filed those requests; we have not been able to comply with them.

The CHAIRMAN. And the Department does not take the dollars and cents view of it at all; it takes the view of what is the best for the whole country.

Mr. GALLOWAY. Yes; it looks to what is best for the whole country. We must necessarily take that view. We appreciate the position of Members of Congress in reference to these seeds. That is well understood, but if I am asked the direct question of course I must answer it in a direct way. That has been the attitude of the Department. The Secretary has stated it several times. We have no way of telling whether this ordinary distribution does good or not. I have no way of telling that, although I have been studying the subject for seven years. I may have my opinion, but that opinion would not be worth as much as the Members' opinion where the seed goes.

Mr. SCOTT. The mere fact that the people want the seed and ask for it does not necessarily lead to the deduction that the country is benefited by the distribution?

Mr. GALLOWAY. No, sir; it is generally understood now, owing to the fact that this has been going on fifty years, that they can write a postal card to the Department and get seed free, and so a great many requests are sent directly to the Department.

Mr. BROOKS. In that connection, the requests for maps are growing very rapidly.

Mr. CANDLER. Although you have not complied with those requests, they still continue to come in every year?

Mr. GALLOWAY. Yes; they come every year.

Mr. CANDLER. Would it be too much trouble to put on an appendix, summarizing your plans? You could do that when you revise your statement.

Mr. GALLOWAY. I can do that in three or four lines for each project.

(Thereupon, at 12.15, the committee adjourned.)

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COMMITTEE ON AGRICULTURE,  
*Washington, D. C., Tuesday, January 8, 1907.*

The committee met at 10.30 o'clock a. m., Hon James W. Wadsworth in the chair.

FOREST SERVICE.

The CHAIRMAN. Gentlemen, we have before us to-day Mr. Pinchot, whom I have asked to come first because he will be called West in a few days on account of business connected with his bureau, and I think we had better hear him before he goes. The three main points that I think you had better touch on, Mr. Pinchot, are, the appropriation for the new testing building; then something about your receipts from your forest reserves, and then the loan of \$5,000,000 that you are going to ask for. You will remember, gentlemen, that

last year Mr. Pinchot promised us if we would give him a million dollars a year it would be only a few years before he would make the forest reserves self-supporting, and he has taken one good step toward that end already. I think it will be of interest to the committee to hear about it.

**STATEMENT OF MR. GIFFORD PINCHOT, FORESTER, UNITED STATES DEPARTMENT OF AGRICULTURE.**

MR. PINCHOT. Gentlemen, substantially the situation, with reference to the forest reserves, is as follows: When they were transferred from the Department of the Interior to the Department of Agriculture, two appropriations were consolidated, making together, in about equal amounts from each bureau, \$850,000. At that time the receipts in the Interior Department from forest reserves were \$59,000. The transfer was made in February. During the year of the transfer we had the reserves for five months, and the work was almost wholly in organizing and getting ready for what was to come. The receipts of the year were about \$75,000. Then you gave us the right to charge for grazing. We began to get things organized, and the first year, which ended the 30th of last June, gave us, approximately, \$767,000. During the year we spent \$1,193,000. At the end of the year we had left over, after paying all expenses, including 10 per cent given to the States, \$400,000, as a nest egg. In other words, at the end of the first year after the transfer we had a balance of \$400,000 to our credit.

THE CHAIRMAN. On that question of 10 per cent, tell the committee what that was?

MR. PINCHOT. That was a clause that was inserted in the bill in the Senate, providing that 10 per cent of all the receipts from forest reserves should go to the States in which the reserves lie, for the use of the counties, to be spent for roads and schools.

THE CHAIRMAN. In view of the fact that these lands were withdrawn from the assessor's roll?

MR. PINCHOT. Precisely; and the returns will be so large that a provision was inserted in the bill that no more should be paid than a sum equal to 40 per cent of the receipts of the county from all other sources. We have not reached that yet, but we shall before very long.

THE CHAIRMAN. Have you any figures which will show the largest amount paid under that provision of the act to any one State?

MR. PINCHOT. I have not the exact figures—about \$12,000.

THE CHAIRMAN. To what State?

MR. PINCHOT. To Colorado, if I remember rightly. I am sorry to say I forgot to bring those figures with me, but the largest amount was about \$12,000. We had, as I said, \$400,000 in the Treasury at the end of the last fiscal year. We had spent \$1,193,000; deducting the \$400,000 from that gave us a net expenditure of approximately \$700,000. So that, actually, the first year we had a balance of reduction in the appropriation. We had spent less money. If we count the money we had in the Treasury when the year was over, we spent less money the first year after the transfer than the year before.

MR. BROOKS. You do not mean that, do you, exactly; but, as I understand, you used less money of the General Government?

Mr. PINCHOT. Less money of the General Government. I did not state that just as I should have.

Mr. BROOKS. You have spent very much more?

Mr. PINCHOT. We had spent very much more.

Mr. BROOKS. But a portion of what you had spent had come in from the income of the reserves?

Mr. PINCHOT. Yes; so that the charge upon the Treasury was less for the first year.

Mr. SCOTT. This \$400,000 reverts to the Treasury, I presume.

Mr. PINCHOT. It was in the Treasury, but under the terms of our appropriation we have a right to use the money that comes in from forest reserves for expenses.

Mr. SCOTT. As a revolving fund?

Mr. PINCHOT. As a revolving fund. That provision was inserted in the bill last year, the stipulation being that beginning in 1908 the Secretary of Agriculture should report to Congress, in the Book of Estimates, exactly what he proposed to do with the money, so that Congress could have a chance to refuse it and make any changes it chose. This year the receipts will run up to about \$1,250,000.

The CHAIRMAN. You mean the fiscal year ending June 30, 1906?

Mr. PINCHOT. 1907. I have here a statement of the receipts of the first half of the present fiscal year up to the close of business yesterday, which shows that we had received up to that time \$365,272.98. That does not look like a million and a quarter. The matter is explained in this way. The grazing rights, which are by far our most important source of revenue now, last year amounted to \$590,000. That revenue does not begin to come in until after the first of January. I have expected for the fiscal year \$600,000 from timber cutting and a little more than \$600,000 from grazing.

The CHAIRMAN. Is the grazing paid for in advance?

Mr. PINCHOT. Grazing is paid for only at the beginning of the grazing season.

The CHAIRMAN. How does it come in in January?

Mr. PINCHOT. It begins shortly after January. The men begin to put their cattle in some of the southern reserves early, and pay before it goes in.

Mr. FIELD. What is the charge that is made by the Government for the privilege?

Mr. PINCHOT. We make a charge per head. We charge from 5 to 8 cents for the summer grazing season for sheep, and 25 to 35 cents for cattle and horses.

Mr. CANDLER. For what length of time?

Mr. PINCHOT. It may be for six, seven, or eight months.

Mr. BROOKS. What other sources of income are there for the Bureau from the reserves other than timber and grazing fees?

Mr. PINCHOT. The other sources are comprised under what we call privileges—that is, the right to use the forest-reserve lands for any one of very many purposes. For example, if a power company wants to come into the reserve we make it pay a fixed sum per mile for its pipe lines or transmission lines, and a fixed sum per acre for the land its power house occupies, and charge for what we call conservation.

The CHAIRMAN. That is the water supply, is it?

Mr. PINCHOT. We can not charge them for water, because the water was guaranteed by the Government to the States, but we maintain

their watershed for them. They would have to go out of business if that watershed were destroyed. We have been in negotiation with them for the last six months.

Mr. BROOKS. That, of course, is only just starting?

Mr. PINCHOT. That is only just starting.

Mr. BROOKS. How much of a figure is that?

Mr. PINCHOT. So far this year we have taken in only \$8,000 for privileges.

Mr. BROOKS. Did you mean that the electrical power transmission proposition was only an example, or is that the main one?

Mr. PINCHOT. No; it is not the main one yet. It will be the main one. The main ones so far are hotel privileges, road houses, pastures, and so on.

Mr. FIELD. Do you charge for hunting and fishing privileges?

Mr. PINCHOT. No; they are in charge of the different States. I think this charge on the water power will amount to a good deal before very long.

Mr. BROOKS. How are the power companies feeling about it?

Mr. PINCHOT. I believe they do not want to pay the money if they can help it, but we are entirely satisfied that we have a legal right to make the charge, and we are approaching an agreement with them.

Mr. SCOTT. What sort of a basis do you take upon which to estimate the proper charge for the power companies?

Mr. PINCHOT. We are getting at it like this. We take a plant which gets a maximum of service from the reserve—that is, has its power house inside of the reserve, with pipe lines and most of its transmission lines—and we fix a charge, and where we give less to another power company we reduce the charge correspondingly. The measure decided on is the horsepower developed at the wheel, as shown by the company's meter. So they pay for exactly what they get. We are now considering a charge of 20 cents per thousand kilowatt hours, which is approximately equivalent to 75 cents per horsepower per annum.

The CHAIRMAN. 75 cents?

Mr. PINCHOT. 75 cents per horsepower per annum, and developed horsepower in that country is worth from \$25 to \$125, and in some cases it is worth \$150.

The CHAIRMAN. Per year?

Mr. PINCHOT. Per year. In the Reclamation Service, in one case that we know of, there is a charge of \$20 per year per horsepower. There they need the water, which is different.

Mr. CROMER. What would happen with a power plant if it did not have a plant located on the reservation?

Mr. PINCHOT. We should very greatly reduce the charge. We are trying to make them pay for just what they get.

Mr. SCOTT. Do you make a uniform grazing charge?

Mr. PINCHOT. No; we adjust the grazing charge to the value of the range, the distance from the market, and so on.

Mr. SCOTT. And those contracts are made through your office here in Washington, are they?

Mr. PINCHOT. They are made by the man in the field, in order to avoid delays. The Secretary of Agriculture determines how much stock should go in each reserve. That has been decided for the next

year for nearly all of the reserves. Then the officer in charge on the ground is notified and he consults with the local people.

Mr. SCOTT. What is his title?

Mr. PINCHOT. Forest supervisor. He consults with the local people and reaches an agreement as to who has the right to have stock in the reserve. We have been able in this way to put an end absolutely to all range controversies in the reserve, and the vast majority of the users of the reserve range are entirely satisfied.

Mr. SCOTT. How do you apportion the range and separate one man's flocks or herds from another?

Mr. PINCHOT. We inquire how long a man has been in the habit of using a range first. The man who has customarily used it is considered first. The small man who is making a home is given the preference over the large man who is simply in it for profit. We have had a great deal of controversy about that in the past, and our position has always been that we put the livelihood of the small man ahead of the profits of the big man.

Mr. SCOTT. I simply did not understand exactly what you substitute for a fence to divide the range among the various lessees?

Mr. PINCHOT. There are two principal classes of stock—sheep and cattle. The sheep in the West are run always in herds, and the herder goes with each flock and takes it where he likes. We have no trouble in dividing the range, so far as the sheep men are concerned, giving each sheep man his own range, and the herder can keep the sheep where he pleases. Cattle can not be herded in that way. They have certain natural runways of their own. You take account of the stock that has been in the habit of using a certain part of the reserve, and it will be found there next year when they are turned out. We have no difficulty whatever then in distributing the stock in the reserve.

Mr. FIELD. Inasmuch as a charge is made per capita, there can be no exclusive privilege to anyone over a certain territory?

Mr. PINCHOT. There can be for sheep but not for cattle. There can be also, in a sense, for cattle, because of this habit of the stock of sticking to country they are fond of.

Mr. BROOKS. Are you sure?

Mr. PINCHOT. Yes, sir.

Mr. BROOKS. Coming back to this electrical power proposition, a company generating 10,000 horsepower would pay you \$75 a year?

Mr. PINCHOT. Yes, substantially.

Mr. BROOKS. And the larger companies ten times as much?

Mr. PINCHOT. They would pay in proportion. The Edison Electric Company of southern California, which is the company that has been using most of the appropriations from the special bill that was passed last year, would pay on their plant, already developed, about \$26,000 a year. On the other hand, their net surplus, after paying running expenses and interest on all obligations, was about \$500,000 last year. It is a very small percentage.

Mr. SCOTT. In the matter of the forest timber cutting, do you scale the timber after it is cut?

Mr. PINCHOT. We scale the logs after they are cut, and before they are moved.

Mr. CANDLER. What is the character of the timber that is permitted to be cut?



Mr. PINCHOT. Mature timber, which of course differs very greatly in different places. Sometimes a tree may be mature at 6 inches in diameter. At other times it will not be mature at 3 or 4 feet. That little map shows the location of the reserves through the West. We have every character of forest, and every condition of forest, young and old timber, dead and live, and burned and green, and so on.

Mr. CANDLER. As this timber is cut away is there any effort made to renew it?

Mr. PINCHOT. We take very great care to see that in every case enough seed trees are left to insure the perpetuation of the forest as well as to protect all the younger timber. That is our principal task in regard to the timber cutting.

Mr. CANDLER. It is not permitted to the point of devastation?

Mr. PINCHOT. Absolutely not.

Mr. SCOTT. What provision is made, under the law, for homestead entry on the reserve?

Mr. PINCHOT. Homestead entry was suspended entirely on the forest reserves until last year. At the suggestion of the Department, Congress passed an act (act of June 11) which provided that any land found to be agricultural in character might be opened to homestead entry as soon as that character was established. It had been charged by the opponents of the forest reserves that we were withdrawing from use thousands or millions of acres of good agricultural land that the people were clamoring for. The bill was passed, and we have had so far about 2,000 applications for homestead entry in the reserves, many of which, of course, are based on the desire to get the timber, even now; but we are opening a considerable proportion of the land applied for to homestead entry.

Mr. BROOKS. The great majority of these two thousand, then, are favorably considered?

Mr. PINCHOT. I should say not the majority. I should say less than half.

Mr. SCOTT. Do you consider each homestead application as an individual case?

Mr. PINCHOT. We make a personal examination on the ground in every case.

Mr. BROOKS. What is the usual reason for refusing the applicant? Because it is timber land?

Mr. PINCHOT. Because he wants the timber instead of the homestead.

Mr. LAMB. Does he say that?

Mr. PINCHOT. No, indeed; but we go on the ground and we find a valuable crop of timber.

Mr. CANDLER. And very little agricultural land?

Mr. PINCHOT. Exactly. We have had a rather interesting case in Montana. It was desired to have a forest reserve opened to entry there, and there was exceedingly valuable timber on it. We declined to open it, and shortly afterwards we sold that timber for over \$4,000.

The CHAIRMAN. How much to the acre?

Mr. PINCHOT. There were several hundred acres of land. They would have got timber worth about \$80 per acre if we had allowed the land to be homesteaded, and the decision of the Service was that we were perfectly willing, if that was agricultural land, to consider

agricultural entry upon it after the timber had been removed, but we could not give large bodies of marketable timber as homesteads.

The CHAIRMAN. How do you arrive at the number of cattle to be placed on any range?

Mr. PINCHOT. In two ways. We ascertain what stock has been running there in previous years and compare that with the condition of the range. We find that the regulation of the range as we are doing it very largely increases the carrying capacity.

Mr. BROOKS. You think that is demonstrated?

Mr. PINCHOT. Absolutely.

Mr. BROOKS. In other words, under the administration of the Service a given area will increase its carrying capacity from year to year?

Mr. PINCHOT. Without question.

The CHAIRMAN. Up to a certain point?

Mr. PINCHOT. Yes, sir; up to a certain point.

The CHAIRMAN. How do you prevent the putting on of more cattle than the agreement calls for?

Mr. PINCHOT. If we had any reason to suspect fraud we would count a man's stock, on or off; but a more powerful reason than that comes from the grazing fee. Every man pays now for his stock in the reserve, and it is to every man's interest, therefore, to prevent his neighbor from getting in a lot of extra stock that he does not pay for, and thus damaging the value of the range to the man who does pay.

The CHAIRMAN. They keep tab on each other, as it were?

Mr. PINCHOT. They keep tab on each other, and very effectively.

Mr. BROOKS. The reason for the increased capacity of the reserve is not because of anything you are doing to the reserve, but merely due to the fact that you are preventing a continuation of previous overgrazing?

Mr. PINCHOT. That is all. We are just getting ready to take up, practically, the improving of the ranges.

Mr. BROOKS. If it will not interfere with your trend of thought, there is another matter I wish you would discuss for a moment if you will. What are you doing with regard to mineral entries on the forest reserves?

Mr. PINCHOT. We find in the case of mineral entries, as we find with the homestead entries, that a certain proportion are bona fide and a certain proportion are made for other reasons—usually for the timber.

Mr. BROOKS. How do you test the bona fides?

Mr. PINCHOT. We make a personal examination on the ground.

Mr. BROOKS. By whom?

Mr. PINCHOT. Either by the supervisor or experts from the Geological Survey, as the case may require.

Mr. BROOKS. What elements enter into the bona fides? Do you mean that the quantity of mineral showing is a criterion?

Mr. PINCHOT. The decision of the Interior Department is that in the case of a mineral entry, before the bona fides are shown, there must be evidence of minerals sufficient to warrant a reasonable man in developing it.

Mr. BROOKS. That is the decision of the courts. Do the forest rangers determine that?

Mr. PINCHOT. The forest ranger can determine that in many cases, because quantities of mineral entries, in the first place, are made on lands that are not mineralized at all. For instance, a man wants to keep a saloon near a lumber camp. That is a very common case. There is one case in California where a man has more than 250,000 acres of contiguous placer claims. We know, without any question, that the man is entering these claims for the timber, because the area is in one of the best timber belts of the forest reserve. In that case we have to fight the entries. We get a man from the Geological Survey and our experts, and we send them there and have a personal examination made on the ground to see whether there is a reasonable possibility that the land could be taken for the mineral.

Mr. BROOKS. I should think there would be great danger along that line, because it is a pretty difficult question to determine the bona fides where a mineral location is made.

Mr. PINCHOT. It is an exceedingly difficult question, or, rather, it would be if it were not for the single matter of development. Most of the fraudulent claims that we have to deal with are not developed. Where a man is making a bona fide attempt to develop a mine we do not interfere with it, but most of them are merely locations, and they do nothing else.

Mr. BROOKS. A lot of fellows who make locations have no means to do any development. I have had a good deal of trouble lately in connection with that matter, and that is why I asked the question. A specific example came to my notice a short time ago in an area where there have been, as I understand, a group of claims held up, and entries refused, and very good mines have been developed.

Mr. PINCHOT. That I do not know about. Where is it?

Mr. BROOKS. I will tell you about it some time. The practical notion that is running in my head is this, that these men have kind of second sense about it, and on a very slight showing of mineral that really would not apparently justify an engineer, and a showing which most engineers would refuse, some of these old fellows who have not a cent to their names, and who are simply grubstaked, will keep on year after year, and by and by will develop very good mines. That is the history of mining in many places.

Mr. PINCHOT. That is perfectly true. On the other hand, there are a vast majority of those claims that do not show on their faces that they are good claims.

Mr. BROOKS. I suppose that is so.

Mr. PINCHOT. There may be some one who has bought timber from us, or we may have advertised certain timber for sale, and some fellow thinks there is a chance for him to hold up the purchaser, and he therefore locates a lot of mineral claims in the timber. Or there may be a water hole, and this man locates a placer over the water hole; also, the saloon proposition is very common, and so on. We have as a rule very little difficulty in determining by personal examination whether the thing is fair or not, and of course where there is any doubt it is resolved in favor of the man who wants the claim.

Mr. SCOTT. In case of an adverse decision there, which the claimant desires to appeal, what are his rights?

Mr. PINCHOT. He appeals to the Secretary of the Interior. We can not decide the case at all. What happens is that the Secretary of the Interior refers to the Forest Service for a finding of facts, we

report what we find on the ground, and the decision rests with him. We have nothing to do with the title in any form.

Mr. BROOKS. At present there is no way of appealing from the Secretary of the Interior to the courts?

Mr. PINCHOT. None.

Mr. BROOKS. There is a bill now pending for that purpose.

Mr. PINCHOT. Is there? I did not know that.

The CHAIRMAN. A bill now pending for what purpose?

Mr. BROOKS. To give the right of appeal from the Secretary of the Interior, on all land findings adverse to the applicant, to the courts.

The CHAIRMAN. What courts; the State courts?

Mr. PINCHOT. That is Mr. Hepburn's bill.

Mr. BROOKS. It is according to the jurisdiction, but I think his bill uses the term Federal courts. The general mineral law gives the State courts concurrent jurisdiction, but Hepburn's bill——

Mr. PINCHOT. It organizes a special land court, or appellate land court, and then there is an appeal from that to the Supreme Court.

Mr. BROOKS. That is right.

Mr. LAMB. Do you have any trouble with squatters?

Mr. PINCHOT. We are troubled with squatters very little, because where a man wants to build a bona fide home, we want to help him, and we have avoided, everywhere we possibly could, any interference with the bona fide settlers.

Mr. BROOKS. I have one other question I would like to ask in regard to the power matter. Has the right of the Department to levy this tax for the transmission of electrical energy over the reserves been challenged?

Mr. PINCHOT. It has been challenged by the companies, in briefs which they have submitted, and which are about to go, I think to-day or to-morrow, to the Attorney-General, with briefs from the Forest Service, showing our views; but we believe there is very little doubt——

Mr. BROOKS. But thus far, up to this time, you have had no opinion from the Attorney-General?

Mr. PINCHOT. We have had an opinion in an almost precisely similar case, but not in this specific case.

Mr. BROOKS. That is, an opinion on the grazing fee.

Mr. PINCHOT. No; it is still another case.

Mr. BROOKS. And as the law is at present constituted, I believe there is no way of getting into the courts on that question either?

Mr. PINCHOT. None.

The CHAIRMAN. Proceed.

Mr. PINCHOT. I wish to make just one more statement about the receipts. We came up, the first year that we had complete control of the reserves, with nearly \$700,000. We are going to add about half a million dollars more to the receipts this year, and my judgment is that we can keep adding at least half a million a year to the receipts, simply by the prosecution of the work as now planned.

I have told the committee that in five years from the time of transfer we would take the whole charge off of the Treasury, and I can say that I have asked for \$100,000 less this year than I did last year. In the next three years I propose to reduce the estimate to nothing.

It would be, for example, \$900,000 this year, \$700,000 next year, \$400,000 the following year, and the year after that no appropriation; and I fully believe we can make the Service self-supporting at that time, as I said we could. But there is one very serious obstacle. We have got money enough to run these reserves, but we have absolutely no capital with which to provide the means for developing them. They are precisely like farms without agricultural tools. We are handicapped constantly for lack of the commonest conveniences that every man would have on his own property. For example, we have no telephones and very few trails. Our men are held up for days at a time, even for lack of bridges. A man gets up in the morning, and he may have to spend half a day hunting his horse, because we have no pasture fences. Our men are obliged in many cases to live in tents during the severe weather, because we have been entirely unable to put up cabins for them. In a word, we have not the ordinary necessities for administration.

We propose to ask, not that you should appropriate the money directly for that purpose, but that you should lend us the money and let the Forest Service pay it back. We have a property there that is worth—well, it is hard to guess at its value. We have nearly \$700,000,000 worth of standing timber, and the reserves as a whole are worth from \$1,300,000,000 to \$1,400,000,000, or something of that kind.

Mr. HASKINS. \$1,400,000,000?

Mr. PINCHOT. \$1,400,000,000, yes. It is an enormous property, more valuable than the property that is in charge of the Army and Navy together. The Navy has something less than \$600,000,000, and the Army is estimated at about \$700,000,000.

Mr. LAMB. How much, in square miles, does it cover?

Mr. PINCHOT. It covers about 127,000,000 acres, or 200,000 square miles. It is a good, big estate and there is no reason why it should not be entirely self-supporting. As an illustration of what we need, I have brought up here maps of a few of the reserves, showing the plans. I will, if I may, set them down in the middle of the table. These are maps of some of the forest reserves, showing the ordinary conveniences that we need.

The CHAIRMAN. What is this?

Mr. PINCHOT. It is the Santa Barbara Reserve in Southern California. We need telephones, rangers' cabins, fences, bridges, and so on.

The CHAIRMAN. How many acres are there in that reserve? Give us a description of the reserve.

Mr. PINCHOT. The reserve covers 1,000,000 acres. It is high, rocky, mountainous land, and as you can see from the contours it is excessively broken. It is largely covered with chaparral instead of timber; but while its timber value is comparatively small, its water value is enormous. A miner's inch of water is worth about \$5,000, and it is of absolutely vital importance to the people in that neighborhood that we should prevent fire on this reserve. We have 28 men on the reserve in the summer time and less in the winter, and they can not begin to cover it.

The CHAIRMAN. How many acres are there in it?

Mr. PINCHOT. About a million.

The CHAIRMAN. What is the length in miles?

Mr. PINCHOT. These [indicating] are townships of 6 miles each.

The CHAIRMAN. What is the scale of the map?

Mr. SCOTT. Each one of these is 6 miles square?

Mr. PINCHOT. Six miles square.

The CHAIRMAN. Count the miles in the length of it.

Mr. PINCHOT. There are 20 townships.

The CHAIRMAN. About 18, to the average.

Mr. PINCHOT. Well, yes. There are about 20 townships, and that would be 120 miles.

The CHAIRMAN. One hundred and twenty miles long. What are these indentations that enter into the outer boundaries?

Mr. PINCHOT. This piece [indicating] is an old Spanish grant.

The CHAIRMAN. To one individual?

Mr. PINCHOT. To an individual; yes.

The CHAIRMAN. An individual is owning it?

Mr. PINCHOT. Yes, sir. It was made before California came into the Union.

The CHAIRMAN. Is it the same over there at the end?

Mr. PINCHOT. Yes, sir.

Mr. LAMB. How big is the piece you have your hand on?

Mr. PINCHOT. Eight miles. There are a great number of Spanish grants all through Arizona and New Mexico and California. This is one of the best manned reserves we have, because of the enormous danger from fire, and the tremendous risk of bad fires to the people in the neighborhood. So we have 28 men. The average would give us about 5 men on that reserve. If I may break in there, I would say that if we had the forest reserves manned as they are in Prussia, instead of about 800 rangers, as we have in the summer time, and 600 in the winter, we would have 117,000 rangers; and instead of 90 supervisors in charge of the reserves, we would have 15,000.

Mr. BROOKS. Do you say you have 5 rangers?

Mr. PINCHOT. No. I say if this were an average reserve. We have 28 on this reserve. The average ranger's beat is about 200,000 acres, and the average supervisor's range is 1,412,826 acres.

Mr. BROOKS. How much can one man—a good, ordinary, active ranger—patrol reasonably well?

Mr. PINCHOT. What we are doing is to make a man patrol about 200,000 acres, and he can not do it decently; but it is the best we can do.

Mr. BROOKS. He can not patrol 50,000 acres?

Mr. PINCHOT. No; he can not; but we are doing the best we can. The reserves are ridiculously undermanned.

The CHAIRMAN. What is the result of that undermanning?

Mr. PINCHOT. The result is a double one. We have more fires and more trespasses. We have more trouble generally, more difficulty in controlling the grazing, than we would otherwise have, and we are able to use the reserves very much less.

Mr. DAVIS. Of what does the trespass consist, mainly?

Mr. PINCHOT. The most important is the sheep trespass. They steal a little timber, but not much.

Mr. DAVIS. The timber is not very valuable, is it?

Mr. PINCHOT. Yes. This reserve happens to have very little, but other reserves have enormously valuable timber.

The CHAIRMAN. Is there any grazing on that reserve?

Mr. PINCHOT. Very little. It is too valuable as a watershed to allow grazing. There is some grazing of cattle and horses, but none of sheep.

Mr. SCOTT. You do not expect, then, that this particular reserve will ever be self-supporting?

Mr. PINCHOT. Yes.

Mr. SCOTT. If it has no timber or grazing land how can it be?

Mr. PINCHOT. It will be self-supporting as a watershed, after a while, and even if it were not self-supporting directly, it is indirectly much more than self-supporting. Curiously enough, we get quite a revenue from this reserve for the bees.

Mr. SCOTT. Do you charge for the bees?

Mr. PINCHOT. No. A man wants an acre or two of land in the reserve for an apiary; we rent him the land and take a very small charge, and so we get a little revenue from the bees.

The CHAIRMAN. What is that village [indicating].

Mr. PINCHOT. It is called Frazier. We have made a considerable sale of timber. There is still some timber in this.

Mr. LAMP. What kind of wild animals are there?

Mr. PINCHOT. There are some deer and panthers and wild-cats.

The CHAIRMAN. That is not self-supporting?

Mr. PINCHOT. Not by any means.

Mr. SCOTT. In what respect could it be made more profitable by the development you speak of?

Mr. PINCHOT. The main needs we have are for roads, trails, and telephone lines. These dotted lines are telephone lines, and the little squares in there are the rangers' cabins, which are scattered all around.

Mr. SCOTT. Those are projected telephone lines?

Mr. PINCHOT. Those are projected telephone lines. They are the improvements that we need in the reserve. We make plans like this for the forest reserves, after careful examinations on the ground, showing just what is required.

The CHAIRMAN. Have you been over that?

Mr. PINCHOT. I have been in it, but I have never been over it. This is a very slow one to get over because there are exceedingly few trails, and it is a tremendously broken region of excessively steep slopes. It is almost impossible to travel. In addition, those steep slopes are covered with chaparral, and there is a great deal of it that a man can not force his way through at all. He can not go half a mile an hour through lots of it, on level ground. So that when a fire comes, unless you have trails there, you are helpless.

Mr. SCOTT. Does that chaparral burn green?

Mr. PINCHOT. It burns like tinder. It is resinous stuff, and it goes up like smoke. The worst fires we have are in country of that character. If a fire starts at the bottom of one of these steep slopes nothing except a heavy rain storm or a change of wind will stop it from flashing up to the top. A good many men are burned to death in that kind of country.

Mr. BROOKS. Do you charge now for the use of the reserve, to telephone companies, for long distance lines?

Mr. PINCHOT. We make that charge in the form of a guarantee every year to us that we can use the lines free for reserve business, and we do everything we can to help them come into the reserve.

Mr. CROMER. As a matter of fact, are there any telephone lines in this reserve?

Mr. PINCHOT. There is a telephone line, I believe, across this reserve.

Mr. BROOKS. There must be, from Santa Barbara to Los Angeles.

Mr. PINCHOT. I think there is a telephone line running here, although I am not sure that it does not go around; and I think there is one running clear across.

The CHAIRMAN. How are the lines marked there?

Mr. PINCHOT. They are marked by the land office surveys and we are putting up boundary notices on the trees everywhere.

The CHAIRMAN. Of a perishable nature?

Mr. PINCHOT. Yes.

The CHAIRMAN. They have to be renewed every now and then?

Mr. PINCHOT. Yes; we can not begin to put in anything permanent now. Mr. Scott has asked me how we could make more money out of the reserves by having better communication. This is a poor one to use as an illustration, but we could protect it better and allow some grazing here, because we would have better control of it. Our men would be in constant communication with each other and with the supervisor at Santa Barbara. We would be able to open up, by trails, regions in it where now we can not get at the timber because it is inaccessible. More of these bee men would come in if they could get through the country by trails, and we could cut a great deal more of the minor classes of timber.

The CHAIRMAN. What is there that attracts the bee man, or the bees, rather?

Mr. PINCHOT. The bees feed on the blossoms of various kinds of chaparral found there.

The CHAIRMAN. Those blossoms are only on the chaparral during a certain portion of the year, are they not?

Mr. PINCHOT. They last a good long time. They keep coming through the summer. There is also a good deal of sage there, white sage.

Mr. HENRY. Does it produce good honey?

Mr. PINCHOT. Very fine. We could sell a lot more timber if we had roads and trails by which the people could go up there to get it, and so on and so on.

The CHAIRMAN. Take a reserve like that; is there much trespassing along the edge of it?

Mr. PINCHOT. Not so very much. There is a little stealing of timber, and small things. The Mexicans there steal, but it does not amount to very much.

Mr. SCOTT. As a matter of fact, has it not been regarded rather as a conventional crime for those living near the reservations all along the Rocky Mountain region to take what they wanted or needed from the reserves.

Mr. PINCHOT. Absolutely. In the great majority of cases we are settling the trespasses made before the creation of the reserve as innocent trespasses.

Mr. SCOTT. Are they succeeding in creating a different sentiment?

Mr. PINCHOT. Very decidedly. We need this sort of development on every forest reserve. As Mr. Brooks said, it is ridiculous—I do not know that he said that—



Mr. BROOKS. I will say that.

Mr. PINCHOT. It is ridiculous to expect a man to patrol 200,000 acres of rough mountainous land, without trails, without fences, where the supervisor may not see his men or get in touch with them for months, because he simply can not get over it. Many times it takes a letter a week to get from the supervisor to one of his rangers, and no man can handle a piece of property favorably under those conditions. We ought to have telephone lines from the supervisor to every one of his men.

Mr. SCOTT. What sort of a checking system do you have, as a matter of fact, to give the supervisor of the men any assurance whatever that the rangers do not camp down in some convenient coulee and stay there?

Mr. PINCHOT. We have what I think is the most convenient system of inspection now used under the Government. We have taken 15 or 20 of our very best picked men, who are required to travel a large part of the time through these various forest reserves, go to the supervisor's office and examine the records there, and then go to the forest rangers in the field, finding out what the supervisor has ordered the rangers to do, and whether the rangers have done it. In that way we have been able to ascertain that about a third of the men who came over under the transfer are not suitable men, and they have gone—from a quarter to a third walked out.

Mr. SCOTT. Do the supervisors have a permanent office?

Mr. PINCHOT. Yes.

Mr. SCOTT. Are they expected to stay there?

Mr. PINCHOT. No.

Mr. SCOTT. The headquarters are in Santa Barbara?

Mr. PINCHOT. Yes; they are supposed to spend about half their time in the field.

Mr. LAMB. Are there many squatters in that territory?

Mr. PINCHOT. Not many—there are a few people—I do not suppose more than 50 all through.

The CHAIRMAN. How do they get a living?

Mr. PINCHOT. They are Mexican woodcutters. They are mostly Mexicans.

The CHAIRMAN. Are you trying to get them off, or will you let them stay?

Mr. PINCHOT. No; wherever a man is making an honest living in a reserve, we like to have him.

Mr. BROOKS. It helps the rangers, does it not?

Mr. PINCHOT. It helps the rangers very much.

Mr. SCOTT. You say they are Mexican woodcutters. Do they cut wood from the reserve?

Mr. PINCHOT. They get permission. We sell it to them at a very low price.

Mr. HASKINS. There is a good deal of distance there?

Mr. PINCHOT. Yes; but all the wood there is right there. [Indicating.] If they are going to have it, they must get it right in the reserve.

I was going to ask for \$5,000,000 first, gentlemen, to begin to do this improvement work and put our national forests in such shape that we can handle them, which is not the case now. I want to change that, and ask for \$2,000,000 in the present bill.

Mr. BROOKS. That is a direct appropriation?

Mr. PINCHOT. A direct appropriation, with this string to it, that the money shall be repaid in installments of half a million dollars a year, beginning in 1917.

The CHAIRMAN. And in the mean time shall it draw interest?

Mr. PINCHOT. Just as you like. I do not see why the Government should pay itself interest; but if you wish it, we will do it.

Mr. BROOKS. That is an exceedingly important proposition and I would like to know a little more about the immediate availability of it. Suppose, instead of a loan in this way, which you would feel yourself under obligation to repay, or the Forest Service would feel itself under obligation to repay, there should be a series of appropriations for this specific purpose—regular, ordinary, genuine appropriations. Congress would, under your statement, and under the practice, as it exists, make those appropriations knowing that the result was going to be that after a while the forest reserve, instead of being a charge, would be a source of income?

Mr. PINCHOT. Yes.

Mr. BROOKS. In that way this innovation—which some people would consider pretty dangerous—of loaning the money, would be obviated. Would it be feasible, in other words, for you to come to us with a proposition that, as fast as you could usefully apply it, we should appropriate for you, straight out, these moneys? For instance, you could not use \$2,000,000 in the next current year, usefully?

Mr. PINCHOT. Yes, sir; I can. I have all the plans made. I would like to show you what the plan is. Well, gentlemen, the plan, as made, foots up about like this. I have only brought the completed plans for nine reserves, but I could have brought twice as many just as well.

The CHAIRMAN. For instance, have you got the plans for that reserve?

Mr. PINCHOT. Yes; here they are.

The CHAIRMAN. Quote that first. Let us see how you figure it out.

Mr. PINCHOT. We have 28 men in the summer time, and we need 28 cabins, for which we estimate, complete, with stoves and windows, and with the necessary hardware, \$200 apiece.

Mr. DAVIS. You do not have to pay fancy prices for lumber.

Mr. PINCHOT. Then, we need 56 miles of pasture fence, at \$125 a mile. That sounded to me pretty high at first, but we are going to put up a 4-strand fence, with posts every 2 rods. The wire costs  $4\frac{1}{2}$  cents to  $5\frac{1}{2}$  cents, and we figure that on the average.

The CHAIRMAN. Do you mean the wire on the ground?

Mr. PINCHOT. No; at the railroad.

The CHAIRMAN. How much?

Mr. PINCHOT.  $4\frac{1}{2}$  to  $5\frac{1}{2}$  cents, and we will have to deliver the wire back through this country a great deal on pack animals. There is not timber enough in this case to build our fences of timber economically, and in this reserve the fences will probably cost a little bit more. I have not tried to differentiate it in the different reserves, but in this reserve it would cost about \$125 a mile, which I think is fair.

The CHAIRMAN. How do you subdivide that cost, in labor and material?

Mr. PINCHOT. We estimate 1,280 pounds per mile of 4-strand fence, or \$64 a mile for the wire—heavy wire. Posts, 2 rods apart,

160 to the mile. In some places we will have to pay for the posts. We will not have to pay for the posts in money but in transportation.

Mr. HAUGEN. Do you need 4 wires?

Mr. PINCHOT. Yes.

Mr. HAUGEN. Three wires make a good fence.

Mr. PINCHOT. Yes; but we thought while we were at it we had better put up a first-rate fence.

Mr. HAUGEN. The ordinary fence in the West is 3 wires.

Mr. PINCHOT. Yes; there is no doubt about that; but it struck us that while we could make it 3 wires we had better put up a strong fence.

The CHAIRMAN. Do the rangers have horses and cows?

Mr. PINCHOT. They have horses and cows. We want to make it possible for the married men to take their families up there in the summer time, and have a garden patch. We thought by making these posts fairly heavy we could make them 2 rods apart.

Mr. HENRY. What kind of a post—cedar?

Mr. PINCHOT. It depends on the reserve. In this country they would be of pine.

Mr. HENRY. That is not very durable.

Mr. PINCHOT. It is not very durable, but it is the best we have got. Then we count digging post holes at 5 cents each, and labor for stringing wire at \$30 a mile.

The CHAIRMAN. We pay \$15 a mile to put up a barbed wire fence, and furnish all the material.

Mr. PINCHOT. Yes; but the labor will cost very high back in that country, because we have to take the men in, in many cases. Ninety-three miles of boundary fence, at the same price, \$125.

The CHAIRMAN. What is that boundary fence?

Mr. PINCHOT. There are some places where we have trouble along the boundary, and we should have a fence to protect it. We need 232 miles of telephone lines and poles, at \$30 a mile. This reserve needs 40 miles of road, at \$400. We need 135 miles, anyhow, of trail, at \$75; 144 miles of fire line, at \$100—

Mr. HENRY. What is that?

Mr. PINCHOT. The fire line is a clear sweep 20 to 50 feet wide, which we run through the reserve at strategical points. We have had one heavy fire in the next reserve to this. Then we need one bridge at \$200; a total of \$71,910.

Mr. SCOTT. Would not the building of a cabin and a corral, giving a ranger an opportunity to bring in his family and have a garden and all that sort of thing, tend to inertia?

Mr. PINCHOT. Very much the other way.

Mr. SCOTT. I suppose the duties of these rangers would keep them pretty perpetually on the trail?

Mr. PINCHOT. They do in the daytime.

Mr. SCOTT. If a man is compelled to patrol 200,000 acres, he could not ride out very far and get back at night, could he?

Mr. PINCHOT. It depends on the situation. We have got to partol these reserves so a man can get back at night. We could not handle the thing otherwise. You can not keep the men traveling through that region with pack outfits, and keep them in touch with each other so that they can do much good. We have got to look forward to the time when we can increase the force so that a man will have his own

district and be able to ride over a part of it every day. I have not got the estimates for all the reserves as yet, but I have them for enough reserves to know about what they will foot up to, and improvements like these would cost \$6,292,000.

The CHAIRMAN. What is the cost, for instance, of that one [indicating]?

Mr. PINCHOT. \$75,540.

The CHAIRMAN. For improvements?

Mr. PINCHOT. For improvements on this reserve.

The CHAIRMAN. How many reserves have you altogether? Is that one below the average?

Mr. PINCHOT. No.

The CHAIRMAN. How do they foot up so much?

Mr. PINCHOT. We have something over 100 reserves, at \$50,000 apiece. That would be \$5,000,000. This is considerably over the average.

The CHAIRMAN. I did not realize that you had so many reserves.

Mr. PINCHOT. Yes. To answer Mr. Brooks's question, I do not care, if you give me the money, whether I pay it back or not.

Mr. BROOKS. There is a question of principle that comes in there that is pretty serious. I will say, right now, that I quite appreciate, not the needs, but the demands for the efficient organization of these reserves that the Government has embarked on. It is like everything else that is done in a half-hearted way. Your original investment is not income bearing, but will become so if you make a further investment. But the question for Congress to consider is whether or not it will go into the business of lending a Department money which will be covered back into the Treasury, rather than to make it by direct appropriation year after year, as the exigency arises.

Mr. PINCHOT. I promised Mr. Wadsworth, your chairman, that we would not ask for more than \$1,000,000 for any one year. I am not asking for more than \$1,000,000 except as a loan. If I owned this property, as a private citizen, and needed the money, I would simply borrow it and I would expect to pay the money back.

The CHAIRMAN. It is a question for us to decide whether the Government wants to go into this business. It is a business proposition. As Mr. Pinchot says, he would go and borrow the money, giving the property as collateral. It is a question whether the Government wants to go into that business.

Mr. SCOTT. It might also be said that if Mr. Pinchot were engaged in one great enterprise, and should try to undertake another, and had surplus funds in his first enterprise to carry the expenses of the second, he would, of course, take the funds from his first enterprise. That is, he would take the money out of one pocket and eventually put it back in the other.

Mr. PINCHOT. I would charge it against the one to which it was given?

Mr. SCOTT. Undoubtedly so. It is a mere matter of bookkeeping, and eventually it does not make any difference to the Government. It is simply a question of policy.

Mr. PINCHOT. That is with you gentlemen. Either way would satisfy me, of course.

Mr. COCKS. How many rangers would it require if they were all expected to get back to their cabins at night in this reservation, if they only had enough to patrol—

Mr. BROOKS. Put in "if they had reasonably proper trails."

Mr. COCKS. Assuming it was developed as you have suggested.

Mr. PINCHOT. It is a guess, but I do not believe it would require appreciably more than we have now.

Mr. COCKS. Do you mean that he could cover it in each direction there?

Mr. PINCHOT. Why, yes.

Mr. BROOKS. Twenty miles; 10 miles either way from the cabin.

Mr. PINCHOT. A man can cover 15 miles either way.

Mr. BROOKS. A man in the center here can cover a square of 30 miles.

The CHAIRMAN. Fifteen miles each way from the center?

Mr. BROOKS. Yes.

Mr. PINCHOT. I believe this reserve could be substantially covered with the present force.

Mr. COCKS. That means there, and that way, and that way, and this way [indicating].

Mr. PINCHOT. Yes.

The CHAIRMAN. What is the altitude of that?

Mr. PINCHOT. It runs up to about 10,000 feet.

The CHAIRMAN. There is nothing there in the winter, is there? You do not keep any men there in the winter?

Mr. PINCHOT. There is some timber cutting going on up here, but that is in the high peaks. There must be something like 200 square miles, I think. There is about 1,000,000 acres. Give me the area, will you, Mr. Price? You have it on that slip. I got it too small. It is 1,982,100 acres, or nearly 2,000,000 acres. That is a guess about the number of rangers. It might take 50, but I do not think so.

Mr. COCKS. So far as all practical purposes are concerned, would not a man go from one cabin to another, and camp here to-night, and then go on to-morrow to this cabin? And would not that answer every purpose, if he got around here once in every two or three days in this place?

Mr. PINCHOT. You understand there is a great deal of work in addition to the patrol work that he has to do.

Mr. COCKS. What kind of work?

Mr. PINCHOT. For instance, there is timber cutting going on here, and every tree that is cut down has to be marked. Every log that is cut has to be scaled, and the brush has to be piled in a particular way. It must be carefully seen to, and all instructions concerning it must be followed out. Then, hundreds of people are coming up to the reserve to get a little firewood or a fence post or two, and each man is watched. The stock has to be followed on and off, and where there are sheep—

Mr. COCKS. You do not mean on and off every day?

Mr. PINCHOT. No; on and off in the spring and fall. There is a great deal of work to be done in making trails and roads, repairing telephone wires, and so forth.

Mr. COCKS. How is a man going to ride 15 miles in each direction every day—

Mr. PINCHOT. He is not going to.

Mr. COCKS. And still have time to do anything else?

Mr. PINCHOT. We can not man this reserve for many years to come.

Mr. BROOKS. All there is back of that, as I understand it, is in case of exigency a man could go from a certain place and attend to something that required attention, and go back that night?

Mr. PINCHOT. Yes.

Mr. COCKS. As I understand, this cabin would be of great advantage, even if it was not occupied every night?

Mr. PINCHOT. Of enormous advantage.

Mr. COCKS. So that a ranger would have a dry place ready for pitching his camp, and so forth?

Mr. PINCHOT. Yes; you can count on it safely, without the least exaggeration, that we will more than double the efficiency.

Mr. COCKS. I can appreciate that.

The CHAIRMAN. Your proposition is that you want \$5,000,000, which you propose to pay back in how many years?

Mr. PINCHOT. At the rate of half a million dollars a year, beginning in ten years.

The CHAIRMAN. It is simply working capital to develop the property and to put it on a business, income-producing basis?

Mr. PINCHOT. That is it exactly.

Mr. SCOTT. You are planning for 28 cabins on this reserve?

Mr. PINCHOT. Yes.

Mr. HAUGEN. Do you expect to man them entirely, in time?

Mr. PINCHOT. Oh, yes; in time.

Mr. HAUGEN. How many would it require—15,000?

Mr. PINCHOT. Oh, no; that is the basis, I said, if we had as many men as they have in Germany.

Mr. HAUGEN. How many will you require?

Mr. PINCHOT. On the basis of Germany, 117,000 forest rangers and 15,000 forest supervisors, because a forest supervisor, who, with us, has 1,400,000 acres to look after has 8,465 acres in Germany.

Mr. SCOTT. If my figures, which I have hastily set down are right, there is about 300,000 square miles in that reserve. You have 28 rangers. That gives about 100 square miles to be traveled over by each ranger.

Mr. PINCHOT. Yes.

Mr. SCOTT. One hundred square miles would be comprised, of course, in a tract 10 miles square.

Mr. PINCHOT. Yes, sir.

Mr. SCOTT. Then you put a man down in the middle of that and he would not be very busy, would he, looking after a tract 10 miles square?

Mr. PINCHOT. He would not be if he had only patrolling to do, but that is one small part only of the work. There is all the business of the range to look after. A farmer drives over his farm occasionally to see if everything is all right, but the greater part of his time is occupied in doing work in one way and another; and so with these men. Patrolling will be only a small incidental part of their duty as time goes on.

Mr. SCOTT. What are these 28 men doing now?

Mr. PINCHOT. Their principal business now is to fight fire. We have to have 28 because of the immensely difficult character of the country. Without a trail a man can move nowhere.

The CHAIRMAN. There must be a great tendency to trespass on the border of that reserve?

Mr. PINCHOT. We have to watch carefully.

The CHAIRMAN. Do you say that you allow \$20 worth of timber a year to settlers?

Mr. PINCHOT. That is the case.

The CHAIRMAN. How is that arrived at?

Mr. PINCHOT. There is a law which says the Secretary of Agriculture may give to bona fide settlers, under such rules and regulations as he may prescribe, timber for their own use, and he prescribes \$20 for it a year. In some reserves there are as many as 3,000 permits issued each year.

The CHAIRMAN. That is a part of your receipts, of course?

Mr. PINCHOT. No, that is free.

The CHAIRMAN. Do you find that rather difficult to govern?

Mr. PINCHOT. It is one of the most difficult questions we have, because when a man wants timber he wants it right away.

The CHAIRMAN. And sometimes he does not want merely wood, but he wants timber.

Mr. PINCHOT. Yes, he wants all kinds; and then he wants to get it free. It is a very complicated question.

The CHAIRMAN. Do you want to go further into detail about your \$5,000,000 proposition?

Mr. PINCHOT. Not unless you, gentlemen, have questions to ask. I will give me \$2,000,000 this year, we would like permission to add \$200,000 for a timber-testing laboratory, and I will ask Mr. Hall, with the Chairman's permission, to make a short statement on that subject.

Mr. BROOKS. I would like to ask one question with relation to these German reserves. I would like to know whether they are self-sustaining.

Mr. PINCHOT. They have enormous revenue.

Mr. BROOKS. Do they pay their rangers anything like what we pay them?

Mr. PINCHOT. No; the rates of pay are as low with them in forestry as in other things. The forest supervisor there gets about \$1,000 a year and a house. With us he gets from \$1,500 to \$2,500. I might say in that connection that the investigation of the Keep Commission into the salaries in the Government service has shown that the Forest Service is about 25 per cent, in its salaries, below the average Government organization.

The CHAIRMAN. That is because they are out of the city, and they have not got the facilities for log rolling.

Mr. PINCHOT. I mean the clerks right here.

The CHAIRMAN. Here, too?

Mr. PINCHOT. Yes.

The CHAIRMAN. In this city?

Mr. PINCHOT. Yes.

Mr. CROMER. Lower than the post-office clerks?

Mr. PINCHOT. Yes. I think, so far as the investigation of the Keep Commission has gone, the Forest Service salaries are lower than in any other organization.

Mr. BROOKS. There is one very serious objection that follows from that. These forest rangers are paid anywhere from \$900 to \$1,400, are they not?

Mr. PINCHOT. Yes.

Mr. BROOKS. A man who has the head and the body, and the general intelligence to be a successful forest ranger, if he has any life in him at all, can make more than from \$900 to \$1,400 at almost any kind of work near the reserves.

Mr. PINCHOT. Yes.

Mr. LAFEAN. Do you find any trouble in getting men?

Mr. PINCHOT. We are losing our best men all the time, because we are not able to pay them. One of the most important results this will have, if we can build the cabins and get the telephone lines, and so on, will be to make the men more comfortable, and thus get them to stay.

Mr. FIELD. The necessity for this improved service is much greater in some of the reserves than in others, is it not?

Mr. PINCHOT. Yes, but it is very great everywhere.

Mr. FIELD. Do you regard that California reserve as the most urgent?

Mr. PINCHOT. I think this Santa Barbara reserve is as important as any, because of the immense output of the irrigated lands below here, which depends on this.

The CHAIRMAN. The water reserve?

Mr. PINCHOT. Yes; and this one we have estimated at much more than its pro rata share.

Mr. HASKINS. Are these employees under the civil service?

Mr. PINCHOT. All of them.

The CHAIRMAN. I notice there is an increase of \$19,000 on the statutory roll which has been given to the committee: "Four clerks, class four (increase of two submitted)"——

Mr. PINCHOT. I would like to read you a few figures on that line.

The CHAIRMAN. You submitted another statutory roll, I think?

Mr. PINCHOT. There was a clerical mistake made in the statutory roll that we submitted first. That was changed. This is simply what was first submitted.

The CHAIRMAN. This is the one, then [indicating]?

Mr. PINCHOT. That is the one I would like to have in, instead of the one that was printed.

The CHAIRMAN (reading letter from the Secretary of Agriculture):

Through a misunderstanding certain changes were made in this Department in the statutory roll submitted to me with the estimates of the Forest Service for the next fiscal year. This statutory roll as originally submitted by the Forest Service, a copy of which is inclosed, has my full approval, and I shall be very glad if it can be approved by your committee instead of the amended statutory roll for the Forest Service printed in the estimates of this Department. The statutory roll recommended provides for a small and necessary increase in the number of clerical positions due to the growth of the work of the Forest Service. It provides also for certain promotions in the clerical force, which, under my agreement with you, can not be made except in this way.

That is not exactly an agreement with me. It is a matter of law, is it not?

Mr. PINCHOT. No; it is an agreement that the Secretary would not transfer a man from the statutory roll to the miscellaneous roll, and promote him.

The CHAIRMAN. That is true; yes.

These promotions number 19; 1 is for \$80, 2 are for \$200, and the remaining 16 are for \$100 each. I want to recommend also the promotion of Overton W. Price, associate forester, from \$3,000 to \$3,500 a year.



The communication is signed by James Wilson, Secretary. This is the list as you want it?

Mr. PINCHOT. Yes, sir.

The CHAIRMAN. There is no total given here. What is the difference from the other estimate? Do you know?

Mr. PINCHOT. The difference is very small. I have forgotten just what it is. It foots up \$129,940.

The CHAIRMAN. That is about \$2,000 less than you had in the estimate?

Mr. PINCHOT. It is \$2,000 less. This statutory roll carries \$3,500 for the forester, and the other carried, thanks to the Secretary, \$5,000, which I had forgotten about. I could give you some figures as to the growth of the service.

The CHAIRMAN. What is the total of this? Has this been added up, Mr. Price? Has that list been added up? As I understand, that is the list you want put in the bill?

Mr. PRICE. That is the original.

Mr. PINCHOT. This was changed.

The CHAIRMAN. This is the one you want?

Mr. PINCHOT. That is the one.

The CHAIRMAN. Do you know what the total is?

Mr. PINCHOT. I am not sure, but I think it is \$131,980.

Mr. HAUGEN. Do you ask for an increase of salary of all clerks?

Mr. PINCHOT. Oh, no; not all of them—just a few. I would like to say, too, if I may, about the statutory roll, that the growth of the forest service has been like this: Since the fiscal year 1899 we have had, I find, \$28,520; then \$48,520; then \$88,520; then \$185,440; then \$291,860; then \$350,000, and then the year of the transfer, \$850,140, and last year a million from the committee. At the same time, there have been these enormous changes in the work, required by reason of the new duties that have been laid upon us. We have to come in in September and make estimates for a clerical force under the statutory roll that we think will be adequate until a year from the following July.

The CHAIRMAN. Almost two years?

Mr. PINCHOT. Almost two years. With a service that is growing and changing as rapidly as this is, it is simply impossible for us to meet the situation that far ahead. We make an effort to do it, and do the best we can, but there will be a considerable number of new people in the service between the time when the statutory roll is made up and the time it goes into effect. The result of this is that our clerical force suffers very severely from our inability to recognize good work, which is one of the most fatal things that can happen to any service. This is an actual case: A man comes in in the fall, after the estimates have been submitted, at \$900. He leaves a position often at more than \$900 somewhere else, because our work is attractive and he likes it. If the thing goes on in the regular way that man, whom we are trying out—and if he is worth anything he is worth a great deal more than that—can not get any promotion for two years. The result is of course, that we can not hold him. I do not think there is anything that does our clerical work so much injury as that arrangement which prevents promotions on the statutory roll.

The CHAIRMAN. You mean at any time?

Mr. PINCHOT. Whenever in the judgment of the Secretary of Agriculture it should be done.

The CHAIRMAN. Do you propose to amend the law in that particular?

Mr. PINCHOT. No. What I would like would be to have that agreement which you have with the Secretary, that no promotions whatever in the clerical positions on the statutory roll could be made, abrogated.

The CHAIRMAN. How can it be made on the statutory roll?

Mr. PINCHOT. On the miscellaneous roll. With that we can not move a man off the statutory roll onto the miscellaneous roll and promote him.

The CHAIRMAN. You say the agreement with me. It was an agreement entered into with the committee. It is not mine, personally.

Mr. PINCHOT. Yes, sir; the agreement with the committee.

The CHAIRMAN. I think it was to prevent taking a man from the statutory roll and putting him on what was called the temporary roll or the miscellaneous roll, and promoting him at the same time.

Mr. PINCHOT. Yes, sir.

The CHAIRMAN. It was thought it might be the opening of the door to possible abuse, or favoritism; that was the idea.

Mr. PINCHOT. Yes.

Mr. SCOTT. My recollection of that agreement is that it was made because the committee did not think the Department ought to, by what seemed to be a sort of subterfuge, increase a salary which the committee, after considering it, had refused to increase.

The CHAIRMAN. That was it.

Mr. SCOTT. We found, for instance, that a request would come to us for an increase of a certain salary on the statutory roll. We would consider it and decline to grant it. Then when we got around to it the next year, we would find that that very man for whom this increase had been asked was transferred to the lump-sum roll, and the increase granted, and it was to prevent that that this agreement was made.

The CHAIRMAN. You can not make up a statutory roll to fit every case. You have got to do the best you can.

Mr. PINCHOT. I am certain that the committee has never had any such experience as that stated by Mr. Scott with the Forest Service. We have never beaten around the bush in that way, and we are very seriously injured by the present arrangement. Our work suffers.

The CHAIRMAN. The trouble is to make one method for one bureau and another method for another bureau. It would not do at all.

Mr. SCOTT. Have we not an arrangement with the Secretary whereby he may increase salaries on the lump-sum roll up to a given sum—I think \$3,000?

Mr. PINCHOT. That is only for technical men.

The CHAIRMAN. That was all talked over at the time that statutory roll was comprised mostly of clerks, while the temporary roll was comprised of scientists—or the miscellaneous roll—and there we gave them an opportunity to promote those scientists.

Mr. PINCHOT. We are having a good deal of trouble to hold our men, anyway, but in the technical work a spirit has developed in the service which works out constantly in the men refusing very much higher salaries outside. I could give you the names of half a dozen

right now who have refused salaries from half again as large to twice as large. A man who gets \$1,800 has refused an offer of \$3,600; two who are receiving \$1,200 have refused offers of \$1,500, and another at \$1,300 has refused an offer of \$3,000, because of their interest in the work with us.

The CHAIRMAN. Those are scientific men—technical men?

Mr. PINCHOT. Yes.

The CHAIRMAN. You have the right to promote what you might call technical men?

Mr. PINCHOT. Up to \$3,000. Would it be possible to modify the arrangement so that it would apply to positions which have been considered by the committee and not to the others? That is to say, if you gentlemen had considered the case and decided it, that would settle it; but if it were a case that had never been brought to your attention, then you could trust it to our executive officer until the next 1st of January, when the promotions were submitted to you.

Mr. DAVIS. Under that arrangement would there be any promotions submitted to the committee?

Mr. PINCHOT. I do not know whether there would be or not.

Mr. SCOTT. I should think if there were that arrangement made, it would be with the implied understanding that any proposed promotions, or any actual promotions, would be submitted to the committee.

Mr. PINCHOT. Any promotions which were known about that time.

Mr. BROOKS. That would put us, subsequently, in the position of reducing a man below what he received, if we agreed to do so.

Mr. PINCHOT. I do not think you could make an administrative position without making bad administration possible at some time. You can not give a man the power of determination unless you give him responsibility; and the minute you do that you give him a chance to do bad work.

It seems to me the chance of good work is inseparably connected with the chance of bad work. A man can reach in this way a mediocre condition that is neither good nor bad, but effectiveness is out of reach, it seems to me, under this plan.

The CHAIRMAN. We thought that we had made a great step forward when we eliminated most of the technical or scientific people from the statutory roll.

Mr. PINCHOT. Yes; that was a good thing.

The CHAIRMAN. And gave the power of promotion without the consent of the committee.

Mr. PINCHOT. If it were a question of just hack work, routine work, so that nobody would really care whether it was good or bad, that arrangement might be all right; but where you are trying to have a high grade of efficiency, and where it is necessary for the clerks to do good work, the difference will be recognized directly.

Mr. SCOTT. If this work is one of high-grade efficiency is it not really technical work?

Mr. PINCHOT. I suppose you can not call stenography and type-writing, and compilations, and all that sort of thing technical work.

Mr. SCOTT. No; but I did not think you had such work in mind when you spoke of the people leaving lucrative employment to come into your bureau because they liked the work.

Mr. PINCHOT. I did not. I was speaking then of the technical work.

The CHAIRMAN. I understood it that way.

Mr. PINCHOT. We have had a great many cases of people coming for clerical work, and trying to get in because of the pleasant atmosphere.

Mr. SCOTT. If it is the kind of work you speak of, why can not the promotions be made?

Mr. PINCHOT. They can in the case of technical men, up to \$3,000. I was speaking of the clerical work particularly.

Mr. FIELD. Can not these promotions be made conditionally; that is, subject to the subsequent action of the committee?

The CHAIRMAN. I am afraid that would result—

Mr. BROOKS. That would put a pretty invidious duty on the committee, of reducing a man to the ranks after the Department had advanced him.

Mr. FIELD. No; it is the committee's right to fix it, and if the necessity of the case suggests the promotion of a man, could it not be done conditional upon the subsequent action of this committee?

Mr. PINCHOT. Of course we ought always to be able to justify what we have done in that way.

Mr. FIELD. It would seem, then, that it could be done in a proper case without danger of the subsequent reduction.

Mr. PINCHOT. But, if I may mention it, gentlemen, the difficulty is, it seems to me, that it would be impossible for the committee to have detailed knowledge of each case sufficient to act upon it, except as they get the information from the executive officer.

The CHAIRMAN. If you follow that along you will find that it is impossible for the Secretary of Agriculture, or of any of the Departments, to know individual cases. He would have to go back to the bureau itself, and perhaps to the section chief.

Mr. PINCHOT. That is the man who would be held responsible.

The CHAIRMAN. That is where the danger of favoritism and such things creep in. If each individual case could be decided on its merits by the Secretary it would be different, but that is impossible. It goes back even to the section chief, perhaps.

Mr. PINCHOT. Yes; many times.

The CHAIRMAN. There is the danger. There are a great many of them, and all kinds of people, and the danger of favoritism creeps in. It is a very hard thing to manage. I know that.

Mr. PINCHOT. What we want is efficiency in the matter, naturally. May I now ask that Mr. Hall make his statement?

Mr. BROOKS. The 1905 United States map has all the forest reserves shown on it, has it not?

Mr. PINCHOT. Up to the time when the drafting was completed.

Mr. BROOKS. It is practically all on the latest map?

Mr. PINCHOT. Practically all.

The CHAIRMAN. I think the total of expenditures for that reserve is \$75,000?

Mr. PINCHOT. Yes.

The CHAIRMAN. That is the general class of work you wish to do on all the reserves?

Mr. PINCHOT. Yes.

Mr. BROOKS. I wonder if you can leave this map with the committee?

Mr. PINCHOT. Certainly.

Mr. BROOKS. I would like, when the committee considers it, to have that map before it, and also the latest map of the United States with the reserves on it.

Mr. PINCHOT. Why not have one sent up brought up to date?

Mr. BROOKS. If you can do that, that would be very good.

Mr. PINCHOT. Yes.

The CHAIRMAN. Have you a map as large as that [indicating]?

Mr. PINCHOT. I will take a land office map like that and see that it is brought up to date.

Mr. BROOKS. That is exactly what I want.

The CHAIRMAN. Before we drop that, Mr. Pinchot, there are two propositions—one to loan this money, and one to appropriate it direct. Suppose the judgment of Congress should be to loan it to you. How would you make that loan? Have you looked into that subject?

Mr. PINCHOT. Yes.

The CHAIRMAN. From a lawyer's point of view?

Mr. PINCHOT. Yes, sir. I have it here.

The CHAIRMAN. How does that read?

Mr. PINCHOT (reading):

And there is hereby appropriated out of any money in the Treasury not otherwise appropriated the sum of two million dollars to be immediately available until expended as the Secretary of Agriculture may direct to construct permanent improvements for the administration, protection, and improvement of the national forests, but not for current expenses: *Provided*, That not to exceed two hundred thousand dollars of this appropriation shall be immediately available until expended as the Secretary of Agriculture may direct to purchase the site for and to build and equip a wood-testing laboratory in the District of Columbia: *And provided further*, That the entire sum of two million dollars hereby appropriated shall constitute a loan to be repaid to the general fund of the Treasury without interest out of the special fund obtained from charges from timber, grazing, and other resources of the national forests, and provided for by section five of the act of February first, nineteen hundred and five (Thirty-third Statutes at Large, page six hundred and twenty-eight), in amounts of not less than five hundred thousand dollars to be paid at the end of each fiscal year, beginning not later than the fiscal year ending June thirtieth, nineteen hundred and seventeen, until the entire amount of two million dollars has been repaid.

Mr. SCOTT. Then do you expect to come in next year with the same item, carrying \$2,000,000 or \$3,000,000 more?

Mr. PINCHOT. Whatever the conditions at the time might seem to demand.

The CHAIRMAN. You think the outside amount would be \$5,000,000?

Mr. PINCHOT. I think \$5,000,000 would put us on our feet, and we need not get any more.

Mr. BROOKS. As an alternative to that, suppose Congress should start the policy of giving you one or two million dollars outright every year—as much as you could advantageously expend. That would suit your purposes just as well?

Mr. PINCHOT. Just as well.

Mr. BROOKS. And the net result to the Government would be identical, because after the lapse of a few years the Prussian condition would exist in this country to some extent, and we would be getting back, not as equivalent to a loan, but as increment to the national reserve, a sum equal to the loan.

The CHAIRMAN. If we loan you this money it will be a spur in your side, and you will want to pay it back.

Mr. PINCHOT. Either way it suits me.

There is one more item I would like to call attention to. I have rewritten for submission to you the item "General expenses, Forest Service," leaving out a whole lot of things which were included last year, and which it is useless to leave in, and making one or two changes to which I want to call your attention. Shall I do that?

The CHAIRMAN. Yes.

Mr. PINCHOT. I want to make the changes because at the time it was submitted we did not know just what was going to be necessary. If I may read the item, it goes like this:

GENERAL EXPENSES, FOREST SERVICE: To enable the Secretary of Agriculture to experiment and to make and continue investigation and report on forestry, forest reserves which shall be known hereafter as national forests—

We find that the name "reserve" does a lot of harm in the West.

The CHAIRMAN. Gentlemen, you can follow this on page 25 of the estimates.

Mr. PINCHOT. We find that a good many people confuse forest reserves with Indian reservations. This change will obviate that difficulty, and will help us a good deal [reading]:

Forest fires, and lumbering; to advise the owners of woodlands as to the proper care of the same; to investigate and test American timber and timber trees, and their uses, and methods for the preservative treatment of timber; to seek, through investigations and the planting of native and foreign species, suitable trees for the treeless regions; to erect necessary buildings: *Provided*, That the cost of any building erected shall not exceed one thousand dollars; to pay all expenses necessary to protect, administer, improve, and extend the national forests—

Now, here comes a new part—

And the Secretary of Agriculture is hereby empowered to divide all lands in national forests into such specific national forests as he may deem best from time to time for administrative purposes, and give to each such name as may be convenient; to transport and care for fish and game furnished to stock the national forests or the water therein.

The situation is this, that as the forest reserves are proclaimed now they are exceedingly awkward administrative units. A man is put in charge of a forest reserve, and part of it will be on one side and part on the other side of a range of mountains, and will be inaccessible in winter. What we want to do is to bring those that are accessible together.

Mr. BROOKS. What does the fish and game mean?

Mr. PINCHOT. It means this: We have been offered, a number of times, fish and game to stock the reserves. There is an association now proposing to give us South African antelopes.

Mr. BROOKS. But that does not contemplate an expense to the Government for stocking the reserves and getting the game?

Mr. PINCHOT. It is simply to transport and care for the fish and game furnished.

The CHAIRMAN. To transport them from South Africa?

Mr. PINCHOT. No; for instance, we have been offered a herd of elk, if we can accept them and put them on the reserve.

Mr. BROOKS. Who will take care of them?

Mr. PINCHOT. The forest rangers [reading]:

To ascertain the natural conditions upon and utilize the national forests; to employ fiscal and other agents, clerks, assistants, and other labor required in practical forestry, in the administration of national forests, and in conducting experiments and investigations in the city of Washington and elsewhere; to collect, digest, report, illustrate, and print the results of experiments and investigations made by the Forest Service; to purchase law books to an amount not exceeding five hundred dollars, and necessary supplies, apparatus, office fixtures, and technical books and periodicals—

The CHAIRMAN. Did we not adopt a plan last year of having the Department librarian buy all the books? We struck out all the books last year.

Mr. PINCHOT. Yes; you did.

The CHAIRMAN. So that the purchases of books should all be made on the recommendation of the bureau chiefs, by the librarian, so as to prevent the setting up of separate libraries by each bureau.

Mr. PINCHOT. We have a lot of men in the reserves who are anxious to learn, but they can not afford to buy expensive books on forestry themselves. We have them in the library here, but we have not enough of them. Therefore we wanted to make a little circulating library on various topics, to go from reserve to reserve, or from man to man in the reserve, so that the men could study.

The CHAIRMAN. Then you had better specify that—books only for those places.

Mr. PINCHOT. All right, sir [reading]:

And to pay for freight, express, telegraph, and telephone charges, electric light and power, fuel, gas, ice, washing towels, and traveling, and other necessary expenses, nine hundred thousand dollars, of which sum not to exceed forty thousand dollars (\$40,000) may be used for rent. And the Forester is hereby authorized to procure an official seal for the Forest Service, to be approved by the Secretary of Agriculture, and copies of any books, records, papers, or documents in the Forest Service authenticated under such seal shall be admitted in evidence equally with the originals thereof.

We need that very much, and other people have it.

Total for salaries and general expenses, Forest Service, nine hundred thousand dollars.

It was a million last year.

And there is hereby appropriated out of any money in the Treasury not otherwise appropriated, the sum of two million dollars, to be immediately available, until expended as the Secretary of Agriculture may direct, to construct permanent improvements for the administration, protection, and improvement of the national forests, but not for current expenses: *Provided*, That not to exceed two hundred thousand dollars of this appropriation shall be immediately available until expended, as the Secretary of Agriculture may direct, to purchase the site for and to build and equip a wood-testing laboratory in the District of Columbia.

That is the matter Mr. Hall is going to speak about.

The CHAIRMAN. You will recast that, will you?

Mr. PINCHOT. I will recast it, and turn it in.

The CHAIRMAN. Do you want Mr. Hall to be heard on the new building for testing woods?

Mr. PINCHOT. Yes.

**STATEMENT OF WILLIAM L. HALL, IN CHARGE OF FOREST PRODUCTS, FOREST SERVICE.**

Mr. HALL. The main points about this wood-testing work, and wood-testing laboratory proposition, are very simple. The Forest Service has tested the strength of timber in various ways for several years. The results which have come from that work have been mainly in two directions. The main result has been in bringing into use a lot of timbers which before were considered absolutely worthless. I will give just a few instances. There was a time when the longleaf pine trees which had been tapped for turpentine were not used for structural purposes, because it was believed that their strength was impaired. We took that matter up, tested the wood, and found that the strength was not injured; that such wood was perfectly good, and it is now used, and specifications do not bar that kind of timber.

The North Carolina pine, or loblolly pine as it is sometimes called, which is now in common use as a construction timber through the Eastern States and Mississippi Valley, was not known and recognized on the market until the result of the tests which have been made was made known. Those tests were made right in the old bureau of forestry, or in the old division of forestry, and they were published. In the same way the gums of the South have been recognized, and the Douglas fir, or the yellow fir—two names for the same thing—which grows most abundantly along the Puget Sound coast. That timber was not known, and was not recognized on the market at nearly its true worth, until the tests of the Service began to come out. Now it is coming clear from Puget Sound into the Philadelphia and New York markets. It is going all over the country, and it is very rapidly becoming one of our standard structural timbers. In just the same way we are bringing out the value of the hemlock which grows in the West.

These are simply instances of what we have done in this line of work. There are hundreds of other timbers which we do not know the value of, and we shall not know the value of them until they are put through some kind of test like this, or else are tried in actual use; and our people are very slow to take new timbers and put them into use without some sort of basis to do it on.

So the first and most important result of all this wood-testing work has been to bring into use timbers which were not considered valuable. There is a second result which is scarcely less important to consider, and that is this. In connection with the timbers which are used the tests have shown great economies which were not seen before the tests were made. As an example of that, the vehicle men used more than any other wood—hickory. It is a wood which they have never been able to replace with anything else for many uses, and it is wood of which the supply is dwindling remarkably fast.

They have been grading hickory just as it had been graded in previous years, each man basing his practice on somebody else's practice. The manufacturers became so alarmed at the situation that they asked us whether we would not make some tests of the hickory which goes into their buggies to see whether we could furnish any better system of grading. We took the matter up and tested a lot of different samples of hickory in the form of buggy spokes, all manufactured, and they were graded according to grades A, B, C, and D.



When we got those tests completed they showed that the manufacturers had been discarding, or placing in classes C and D, some of the kinds of hickory which were most valuable for spokes, and that has been going on all these years. They have been throwing out the red hickory for the last hundred years, and we found in those tests, and they now admit it, that red hickory is just as valuable as white hickory for that purpose, and they are changing their practice.

We are doing the same kind of work in testing wagon parts, such as tongues and axles, and other parts. So that is the second important result of this work—showing how to use the timber in an economical way. This work has been carried on with facilities which have been furnished to the service by a number of universities over the country. We have been in cooperation with the Purdue University of Indiana, Yale University, and with the universities of California, Washington, and Oregon. The plan has been that those universities furnished us with a portion of their machinery and laboratories. They furnished their machines, and our men went there at times when the laboratories were available. Of course, when the engineering classes were on or the university laboratory work was in progress, we had to simply get out of the way and give them room, because we could not ask for the machinery at that time. It has been through that sort of arrangement that we have developed this work. The pressure for this laboratory has come from the outside. The wood-using associations and the lumber associations have seen the value of this work, and when we have presented papers before them they have suggested tests and wanted us to make tests.

We have told them that we could only make them so fast, as we had only such and such facilities for doing the work. They have said it was not fast enough; that the timber resources of the country are diminishing, and that they need this work, and want better facilities. So a number of the national associations have taken action in the matter, and in November they sent a number of delegates to Washington for a conference on this subject, and that conference, after considering the matter fully, adopted this resolution:

That it is the unanimous sense of this conference that a laboratory for testing the strength and other characteristics of wood, and for solving problems connected with its economic use, is absolutely essential to the manufacturers and users of forest products of this country; that we ask these interests to petition Congress for an appropriation of \$200,000 to establish such a laboratory, and that it be under the control of the Forest Service of the Department of Agriculture.

The conference was attended by representatives of the National Hickory Association, the National Wagon Manufacturers' Association, the Carriage Builders' National Association, the National Association of Box Manufacturers, the Western Wheel Manufacturers, the National Lumber Manufacturers' Association, the National Hardwood Lumber Association, and the American Forestry Association.

That was really the origin of this business, although it has been suggested for some time.

It has been proposed that this laboratory ought to be in the District of Columbia, here in Washington. If it is so placed, it will give us the opportunity to economize a good deal in the work. Our cooperative work has been done at five different laboratories. We can centralize the work and withdraw from practically all of those labora-

tories that are in the East. We shall probably want to continue some work on the Pacific coast, because it would be too far to ship the material from there to Washington; but if we had a laboratory here it would be accessible to all the timber regions to the south and to the north of us and the mountains on the west of us. So we believe that this is the point for it.

Then there is another consideration. Washington is, as you know, a great center for meetings. Associations such as I have mentioned are frequently meeting here, and it is really a central point, and easier to get at on occasions of that kind than any other point you might pick out in the country. So it seems that this is really the best location for the work.

The strength of timber is not the only consideration that will receive attention in this laboratory, if it is established. There is enormous waste through material left in the forest, and through material thrown out in the sawmill operations, and in reworking the material into the manufactured product. There is waste all along the line, and we can, if this laboratory is established, solve the problem how to utilize that waste. In one particular, that of wood distillation, we believe we could make an enormous saving in the use of southern pine timber. Undoubtedly 25 to 50 per cent of the wood in the trees as they stand on the ground is wasted and never reaches any factory where it is used. It is wasted in the form of stumps, in the form of slabs, and edgings in the sawmill, and then in the form of pieces cut off in remanufacturing, and through wood distillation, or the working of this material into paper pulp, or some similar means, I believe we can effect an enormous saving.

I think, unless there are some questions, that is all.

Mr. SCOTT. To what extent is the work of wood testing being done now by any of the States?

Mr. HALL. There is no work of wood testing being done by any of the States, except as the work is assigned to the students. The University of Illinois is now equipping a laboratory and is proposing to take up some of the work. But almost all of the work that has been done up to this time—and I think I speak with absolute correctness on this—has been done in cooperation with the Forest Service.

Mr. SCOTT. Have any of these big organizations whose resolutions you read a little while ago done any work of that kind for themselves?

Mr. HALL. No; they have not the facilities for doing it and have never established the facilities. They do cooperate with us in the furnishing of material.

Mr. COCKS. What sort of facilities would we have to have to test the strength of a stick of timber?

Mr. HALL. It takes different testing machines for different tests. You have to have one kind of a machine for testing the bending strength of timber with static loading and an entirely different machine to test its strength under impact loading. Different apparatus is also used to test the compression strength of a stick.

Mr. COCKS. For instance, it would not take a very extensive laboratory to test the different kinds of timber that enter into a vehicle, would it?

Mr. HALL. Not if that were the only test to be made.

Mr. COCKS. Do any of these big concerns have their own laboratories? Take the large manufacturers, for instance the Studebakers. They must be able to test their own timber, I should think, for all their vehicles.

Mr. HALL. No; I do not think they test their own timber.

Mr. COCKS. We are testing it for them, all right.

Mr. BROOKS. Is it not your idea, not to test specific pieces of timber that are used for specific purposes, but to test classes of timber and lay down a rule?

Mr. HALL. To establish standards; yes, sir.

The CHAIRMAN. How long has this testing been going on here? It was going on when I first came, and some tests were going on in St. Louis, I think, under a man named——

Mr. HALL. Johnson. The work began in 1892 and went on until 1896——

The CHAIRMAN. Has not any definite ground been covered or any progress made?

Mr. HALL. Yes, sir; I think so. Some of the problems which we encountered at the start we have worked out completely. We have been working, practically, with the long-leaf pine and the North Carolina pine and are about done working with the Douglas fir and shall soon finish up with the western hemlock.

The CHAIRMAN. How many varieties of timber do you consider building timber, roughly speaking?

Mr. HALL. That depends on what you call building timber.

The CHAIRMAN. How many do you consider building timber, as an expert, in round figures?

Mr. HALL. I expect we have as many as 50 building timbers that might be classed as structural timbers; but when you come to the construction of vehicles and things like that, we go much beyond that. There are a great many woods that may be used for that purpose.

Mr. COCKS. What can you think of besides hickory for the spokes of a wheel?

Mr. HALL. I can not think of any other for buggy wheels. Oak is used for large wagon wheels.

Mr. COCKS. What advantage are we going to get in testing a pair of whiffletrees? Is not the best way to hook up a good pair of horses to a big load, and if they stay, you say they are tested?

Mr. HALL. No; because where you have one wagon that you can hook a pair of horses to and test it, you have thousands of other wagons in use.

Mr. COCKS. We want to get at some practical basis. Almost every farmer knows about what size stick to cut out to make a pair of whiffletrees. How is your laboratory business going to help him out in indicating the size of the stick, or the quality of the stuff that is necessary to hold in case he gets stuck with a heavy load?

Mr. HALL. It will show the strength of the timber in different sizes, and if he has that he could readily arrive at the strength of the wood.

Mr. COCKS. How is that given? In what way is it given?

Mr. HALL. It is given in several ways, but the simplest form is the point at which the stick breaks.

Mr. COCKS. What is that designated in; foot-pounds, or what?

Mr. HALL. Pounds per square inch.

Mr. COCKS. Pressure?

Mr. HALL. Pressure.

Mr. COCKS. How is he going to tell the strain that is being put on that stick? How is he going to arrive at a practical solution of it?

Mr. HALL. When we publish any tests we publish the conditions under which they are made. He will know exactly the size of the stick, the cross section, the length, how the supports were placed, and so forth.

Mr. BROOKS. Does he know where the power is applied to the stick?

Mr. HALL. Yes; he knows all the points of the test.

Mr. SCOTT. You say the vehicle manufacturers have been discarding red hickory for one hundred years?

Mr. HALL. Yes.

Mr. SCOTT. Because they thought it was an inferior timber? Do you mean to say that through all that period it never occurred to them to test it and find out?

Mr. HALL. Vehicle work has proceeded largely on traditional lines up to the last few years.

Mr. SCOTT. Do you not think we had better give them an appropriation for education and ask them to wake up?

Mr. HALL. I can not say.

Mr. COCKS. Have they not used this wood for the lower-grade wheels?

Mr. HALL. Yes.

Mr. COCKS. Then it was not wasted.

Mr. HALL. They did not know the strength of the timber they were using in different places.

Mr. COCKS. I do not see that there was much waste.

Mr. CROMER. Have you an estimate of the cost of the laboratory—the establishment of it?

Mr. HALL. Yes.

Mr. CROMER. This \$200,000 is simply to establish the laboratory?

Mr. HALL. That would establish the laboratory and equip it.

The CHAIRMAN. Build the laboratory?

Mr. HALL. Buy the ground and put up the building.

The CHAIRMAN. That is a question that I was going to ask. How much will it cost for the building and how much for the equipment?

Mr. HALL. I should say the building would come to, approximately, \$150,000 and the equipment to \$50,000.

The CHAIRMAN. Has not the Government ground here that we could put it on? There must be. It can not take you more than a few years longer to thoroughly test these woods and give the public the results. There is no use in building a permanent building. That seems to be bad business management. There must be a plot of ground somewhere, even over on the Arlington experimental farm, or some place of that sort, where you could get a piece of ground.

Mr. HALL. It would have to be near the railroad in order to get the materials here. Some of these are large timbers.

Mr. HASKINS. If you had the building and machinery, how long would it take you to make a test of every wood or timber that is on the American market or that enters into building or manufacturing? How long would it take you?

Mr. HALL. That is a very difficult question that you ask.

Mr. HASKINS. You could do it in six months, could you not?

Mr. HALL. No, sir; we could not do it in six years.

Mr. HASKINS. Every stick of timber that grows?

Mr. HALL. Oh, no.

Mr. CROMER. How much additional cost will it be to the Department to sustain this laboratory from year to year?

Mr. HALL. We do not think there will be any additional cost beyond our regular appropriation. We think we could carry it out under the regular appropriation.

Mr. CROMER. The appropriation which you now receive would carry on the work of the laboratory?

Mr. HALL. Yes, sir.

Mr. CROMER. It would only involve this expenditure of \$200,000?

Mr. HALL. To start it and equip it; yes, sir.

Mr. SCOTT. Mr. Hall, following along the line of the chairman's suggestion, have you considered at all the question that some building which the Government now owns might be used for this laboratory? It seems to me rather extravagant to expend \$150,000 for a permanent building when only \$50,000 would be needed to furnish you the necessary equipment. Have you considered whether we might be able to find something already available?

Mr. HALL. We have not hunted for a building which would seem to answer the purpose, because it would require a building to be constructed with reference to the work to be carried on in it. It will have to have special foundations and different parts of the laboratory will have to be fitted for the different work which will be done. Therefore I think it would take the rebuilding of any building that might be found which could be used.

Mr. SCOTT. I understand you only want a roof and sides, after all?

Mr. HALL. No; there would have to be some additions. There ought to be at least two floors, besides a basement, because there has got to be room for fine weighings, for the balances; and room for work such as determining the moisture in the timbers that are tested, because moisture influences the strength of the timber tremendously. You have got to know the percentage of moisture in every stick that is tested. So there is a good deal of fine work to be done. It is not all big, rough work. Altogether it would be a pretty complicated laboratory.

Mr. COCKS. I would like to ask you how moisture affects the timber, whether it is stronger with or without the moisture?

Mr. HALL. It becomes stronger as you dry the timber out. If you take a green stick, or timber, you have 50 or 75 per cent of the weight in water.

Mr. COCKS. Do you mean that after drying that water down until you get the moisture down to 25 per cent, say, there is no change in the strength of the wood?

Mr. HALL. As you begin to reduce the moisture the strength very rapidly grows, so that a piece of timber that has only 3 or 4 per cent of moisture in it will have three or four times as much strength as it would have in the green state.

Mr. COCKS. You speak of moisture in the sense of sap, and not the moisture which it may absorb from the air?

Mr. HALL. I speak of any kind of moisture.

The CHAIRMAN. A green timber would bend more than a dry timber and yet not break, would it not?

Mr. HALL. It will both bend and break more quickly than the dry timber.

The CHAIRMAN. It will sustain more weight and bend without breaking?

Mr. HALL. No; it is relatively very much weaker.

Mr. LAMB. Right there, how do you account for the fact that southern pine when it is bled is as strong as it was before—this Georgia pine that the tar is taken out of? That is a remarkable thing. When you found that out it was a great help.

Mr. HALL. You see, the tapped timber fills up with resin, and we have found that the filling of the pores with resin does not damage the fiber of the wood at all.

Mr. COCKS. What effect does it have upon its quality of resisting decay?

Mr. HALL. Resin is a good antiseptic. It resists decay.

Mr. COCKS. Have you any data on that question?

Mr. HALL. We have no data on that. There is another point about this. We use a great many millions of dollars worth of timber every year in places where timber rapidly rots—telegraph poles, railroad ties, fence posts, mine props, etc. The people are becoming very much interested in preservative treatment. There is no doubt that we can treat timber and make it last twice as long.

Mr. COCKS. The Department has that done already?

Mr. HALL. No; but we have made good progress with it.

Mr. COCKS. All you have to do is to put it in creosote and boil it up, and then let it cool and it is all right.

Mr. HALL. But many railroads have made tremendous mistakes about that.

Mr. HASKINS. Have you made any tests of locust for fence posts?

Mr. HALL. No; we have not.

Mr. COCKS. You did not have to?

Mr. HALL. We did not have to.

The CHAIRMAN. With reference to the relative strength of green and dry timber, you can take a green twig and bend it, and a dry one will snap.

Mr. HALL. Yes.

The CHAIRMAN. That does not apply to timber?

Mr. HALL. No; it would not apply to timber. Green timber will bend more quickly than dry and will also break more quickly than dry timber.

The CHAIRMAN. With the weight directly on it?

Mr. HALL. Yes, sir.

The CHAIRMAN. Well, after all, we are coming to a stone, cement, and iron age, for exterior work at least, and all the wood is now being used principally for interior work?

Mr. HALL. No; as we get away from the use of timber in one line we rapidly develop its use in other lines. There never was a time when timber was used so extensively as at present—in paper making, for instance. There is an enormous amount of timber going in that direction now.

Mr. BROOKS. It is a very much inferior type of timber, is it not?

Mr. HALL. Yes; and it has been found out in the last three or four years that rectangular wooden blocks creosoted make about the best kind of streets we have.

Mr. COCKS. Do you consider that demonstrated?

Mr. HALL. Yes, sir.

Mr. COCKS. By actual test, or by theory, so far?

Mr. HALL. It is in use in many places.

Mr. COCKS. In New York I have seen some of the pavement that is beginning to wear away pretty badly.

Mr. HALL. Still New York is paving with wooden blocks. We are not getting away from wood at all.

The CHAIRMAN. You say we are not getting away from wood at all?

Mr. HALL. I say that, speaking of its use as a whole. We use it for paper enormously.

The CHAIRMAN. We farmers use more stone and cement work than ever before, where we used to use wood. I think we are getting away from wood as a building material very rapidly.

Mr. HALL. Undoubtedly we are.

Mr. FIELD. I would like to know whether the work you speak of will include experiments to determine the longevity of wood and how to treat timbers?

Mr. HALL. Yes, sir.

Mr. FIELD. It is not only to test the strength?

Mr. HALL. No, sir. I meant to answer that when I was speaking about the use of preservatives. A part of this work will be in experiments as to the best way of treating timber with preservatives.

The CHAIRMAN. That has been going on for some years?

Mr. HALL. For some time.

The CHAIRMAN. Have you not reached any definite conclusion on that? I thought you had.

Mr. HALL. Yes; we have reached definite conclusions in connection with some woods. We know that we can treat some woods very readily. The southern pine can be treated very readily. Other timbers we have not found out how to treat at all.

The CHAIRMAN. Will not creosote preserve hemlock and pine equally well?

Mr. HALL. Yes; but you can not get the creosote into the hemlock and pine equally well.

The CHAIRMAN. The hemlock is more open and porous?

Mr. HALL. Yes.

The CHAIRMAN. Can you not boil it into both equally well?

Mr. HALL. No, sir; there is a very great difference in our woods; we have such a variety of woods here. You have to test each kind of timber separately.

The CHAIRMAN. In my opinion it would not justify an expenditure of \$150,000 for a building to make these tests. There are only a certain number of woods that you can test. I would like to see it wound up in five or ten years at most.

Mr. HALL. I am afraid you will not see it wound up in that time. Problems are coming up to-day that were not seen at all five years ago. So I do not think we can carry it out as a definite piece of work and say that when we have tested a certain number of timbers the

work will be done. It is going to last a long time because of the new problems coming up.

Mr. FIELD. Where concrete or iron come into any use that was formerly supplied by wood, notwithstanding that fact double the amount of timber is used for that purpose, is it not?

Mr. HALL. There is more timber used for shipbuilding to-day, a great deal, than when they were building ships of wood.

Mr. SCOTT. Because there are more ships built.

Mr. HALL. Decidedly more ships.

The CHAIRMAN. Yet you see very few wooden ships.

Mr. BROOKS. Then the net result is that the increased use of other materials does not decrease the use of wood.

Mr. HALL. No more than the increase of railroads has decreased the use of horses.

Mr. LAMB. Lumber is going up in value all the while.

Mr. FIELD. All the while.

Mr. COCKS. Lumber is getting scarce.

Mr. FIELD. That is one reason.

Mr. CROMER. Provided the ground was furnished, what do you think the building would cost, Mr. Hall?

Mr. HALL. I think we could reduce it \$25,000. I estimated \$150,000 for the building and ground.

Mr. BROOKS. What kind of building did you contemplate; stone or wood?

Mr. HALL. A brick building with concrete floors.

Mr. HASKINS. About what would be the size of the grounds and building?

Mr. HALL. There are three things that would have to be looked out for. We would have to have it near a railroad, with a switch running into it, so that we could bring the cars to the laboratory. Then we have got to have quite a bit of space——

Mr. HASKINS. You are getting away from the question. You had been discussing the cost of the building, so I asked you what would be the size of the building.

The CHAIRMAN. How large would the building be?

Mr. HASKINS. You said it would be built of brick. How large would it be?

Mr. HALL. A building about 100 by 150 feet.

Mr. HASKINS. How many stories high?

Mr. HALL. Two stories and a basement.

The CHAIRMAN. Do you mean a basement under ground?

Mr. HALL. A basement under ground; yes, sir.

The CHAIRMAN. What would be the use of that? What would you use the basement for?

Mr. HALL. For the very heavy machines. They would be there rather than on the floor. Then, in addition to this building we would have to have a great deal of ground for storing and drying lumber.

The CHAIRMAN. Would you have to have kilns?

Mr. HALL. We should want a small kiln.

Mr. HENRY. Have you contemplated any location about the District of Columbia?

Mr. HALL. No, sir; we have not.

Mr. HENRY. You have nothing to suggest in that respect?

Mr. HALL. No, sir; we have nothing to suggest.



The CHAIRMAN. You say the machinery will cost about \$50,000?

Mr. HALL. I think about \$50,000. That is our best estimate. That would include machinery for testing the strength of timber, and for testing other properties of timber as well—hardness, for instance—and also such machinery as will be necessary in the preservative treatment, and if we put in a kiln to kiln-dry the lumber, that would have to come in.

Mr. COCKS. Is there any way of testing the durability of timber in a laboratory?

Mr. HALL. Yes; we would treat the timber there and then send it out to be put into use to test its durability.

Mr. COCKS. But you can not test it in a laboratory?

Mr. HALL. We have not any way of doing it yet.

Mr. CROMER. I suppose the machinery you speak of is already constructed and in existence. You would not have to invent it and construct it?

Mr. HALL. It will not have to be invented, but it will probably have to be built.

Mr. CROMER. There is nothing like it in existence?

Mr. HALL. No; a good deal of it would have to be built specially; but such machines have been built, so that it does not mean a new thing, I assure you.

Does the committee desire to ask any further questions?

Mr. COCKS. I think we are about run out of questions.

The CHAIRMAN. Are you a graduate of any school of forestry?

Mr. HALL. No; I am not a graduate of any school of forestry. I came into the work before there was any school of forestry.

Mr. PINCHOT. I would like to say that Mr. Hall does not show any need of it.

The CHAIRMAN. No; I simply asked him what school he had attended. He seems to understand the subject thoroughly.

Mr. PINCHOT. May I say a word?

The CHAIRMAN. Yes.

Mr. PINCHOT. I want to say that I believe very thoroughly in the work Mr. Hall proposes, and in the usefulness of it. It has been very carefully worked up by him. He has definite plans for the apparatus and knows just how to use it. Personally I am in favor of the work strongly, because I think it will be immensely valuable. It will save many, many times its cost every year in saving waste and in putting to a better use woods which are either not used at all or which have not been used for the most valuable purpose.

The committee (at 1.15 o'clock p. m.) took a recess until 2 o'clock p. m.

#### AFTER RECESS.

The committee met at 2 o'clock p. m., Hon: James W. Wadsworth in the chair.

#### WEATHER BUREAU.

#### STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF THE WEATHER BUREAU.

The CHAIRMAN. I think the members of the committee who were here last year will remember that we tried to arrange this bill so that Professor Moore could have his horse and carriage as he had had them for years. I do not know what the difficulty was, really, but in one

of the big appropriation bills it was eliminated. We tried to arrange it last year in this language, on page 5 of the estimates, under "Contingent expenses, Weather Bureau:" "Subsistence, care, and purchase of horses, carriages, and vehicles for official purposes only." We put in the words "carriages and vehicles" last year and thought it would cover it, but I am told the Comptroller rules not.

Mr. HASKINS. What is his ruling about that?

The CHAIRMAN. It is said that he ruled that Professor Moore can not use the horse or carriage for anything of a private nature.

Professor MOORE. That I could not use it for any personal purpose that was not official business, because of the language of the measure.

The CHAIRMAN. It is said that he (Professor Moore) could put a bundle of papers under the seat and carry them around in an official way and that would be official, but that would be beating the devil around the bush. He could put a hod of coal under the seat and claim that he was hauling coal for the Department and it would be sufficient, but that would be beating the devil around the bush. So I propose to insert after the word "only" the words "and carriage and horse for the use of the Chief of the Weather Bureau."

Professor MOORE. My location and the character of my duties compel me to have independent transportation.

I am about 2 miles from the Department, and my work requires attention day and night. Since this amendment, and since it has not been apparently legal for me to use the Government horses and vehicles, I have supported two horses and an open and closed vehicle, and have used them in official work. The expense that I have been put to for that purpose in less than two years has been about \$1,225 for two vehicles and two horses and several sets of harness. I have used them in official work. I can not get along well without independent transportation where I am located. Many times I am called upon to go between the two places, 2 miles apart. Then at night there may be storms or floods, or any imminent meteorological conditions threatening, and I have to go; and I have to go when I am called upon. Wherever I am—at the theater, or at dinner—my secretary always knows my location. I am like a physician. And I find that I can not very well transact my official business without the use of horses and vehicles. So, as I say, I have for nearly two years supported them out of my salary.

The CHAIRMAN. It was the intention of the committee to fix it differently.

Professor MOORE. The committee has treated me very well.

The CHAIRMAN. The idea of suggesting to Professor Moore that he put a bundle of papers under the carriage seat and haul it, and that it would be official! That is beating the devil around the bush.

Professor MOORE. The Comptroller says that I can buy horses and carriages, but under the language of this amendment I can not use these horses and carriages personally.

The CHAIRMAN. I think the committee will agree to that.

Mr. LAMB. Yes, sir.

The CHAIRMAN. We will submit it again, of course. There is an increase of \$10,000 in "salaries, station employees, Weather Bureau," on page 5.

Mr. SCOTT. I beg pardon, but would it not be better to take these things as they appear?

The CHAIRMAN. That is how it appears.

Mr. SCOTT. Here is an increase of one clerk submitted on page 3.

The CHAIRMAN. You mean in the salary roll? You want to take that up first? All right.

Professor MOORE. I think there is an increase of two clerks somewhere.

Mr. HASKINS. Yes; on page 4.

Mr. MOORE. There is an increase of a \$900 clerk and one of class 2.

The CHAIRMAN. On page 3 there is an increase of one in class 2 and on page 4 an increase of one submitted, of clerks at \$900 each.

Professor MOORE. Those two clerks are to handle the increased work.

The CHAIRMAN. Are those two the only increases?

Professor MOORE. Those are the only ones. Those two clerks are to handle the general increase in the central office due to establishing four additional stations on the outside.

The CHAIRMAN. That is due to what?

Professor MOORE. Due to the increased work at the central office, which is due to the fact that it is proposed a little further along to create four additional stations outside. The work of every station has to come to this office for compilation, verification, and revision.

The CHAIRMAN. Then we come to page 5, "Salaries, station employees, Weather Bureau," the first place there is an amendment proposed, "and the employees of the Weather Bureau outside of the city of Washington may hereafter, in the discretion of the Secretary of Agriculture, without additional expense to the Government," be granted leave of absence, etc. It makes the Weather Bureau leaves of absence conform to the others in the Department.

Professor MOORE. It does not change existing conditions at all. I did not ask to have it done. I think it is done to make the phraseology the same regarding leaves of absence throughout the whole Department.

The CHAIRMAN. We overlooked it last year. We meant to make it uniform. You ask \$10,000 increase.

Professor MOORE. That is to cover the salaries of the four additional Weather Bureau stations. We have requests for a great many additional Weather Bureau stations, but as in years gone by, it has been thought possible to increase by only a few each year. Some years we have authorized as many as eight, and some years six. I think if you authorize the four new stations it will fairly keep pace with the growth of the service.

Mr. BROOKS. Are you willing to say where you propose putting them?

Mr. MOORE. Well, I will say this. We have easily 50 applications for additional stations. Out of those 50 there are 10 or 12 that would have a legitimate claim—10 or 12 stations that I think might be authorized—and if 4 are authorized I should pick those that I believed to be the most important. I can give you the names of those stations if you want them, but I think you would have less discussion if you did not know the names of them. I am free to say that I do not now know which of the 12 we will select.

Mr. BROOKS. I would like to ask another question right there. I think you have established a number of stations which are not full

stations, where they are in cooperation simply. Is there any provision for that number to be increased?

Professor MOORE. Take the station at Corona. That station costs only about \$25 a month to maintain. The main thing there in forecasting for Colorado is to determine when the snow is falling, and what the temperature is in some of the high mountain regions; for use in making the forecasts for the regions to the south and east. We get the information we need there without establishing a full and highly paid station—at an expense, according to my recollection, of \$25 a month. We could not pay \$125 a month for establishing any such special station.

Mr. BROOKS. That answers the idea that has been advanced a good deal in the committee, because that station is really largely maintained by cooperation. In other words, there are other sources of supply than the Government.

Mr. MOORE. We established that station in addition to that which it was understood last year we would establish. We have established the full number that you authorized last year, and this one is additional. We do not want you to take that as evidence that you can reduce our appropriation safely, but as evidence of our good administration. I will say this, that among the number of places in the West that are anxious to have stations there is one far down in Nevada on one of these new lines of railroad that is going down through there—

Mr. BROOKS. Down on the Erie line?

Mr. MOORE. It is down not far from The Needles. There are no interests there to serve. The local interests would not profit much by a station. That station would be valuable in forecasting for the regions east. So that is one place where we should probably put a station if these four new stations were authorized.

The CHAIRMAN. Of course the danger, under pressure, as we know, is to multiply the stations unnecessarily.

Professor MOORE. I will say this: Lansing, Mich., and Fort Wayne are two cities that in time will probably receive Weather Bureau stations. I do not know whether they would get any of these next year or not. There are several good places.

The CHAIRMAN. How large is Fort Wayne?

Professor MOORE. About 60,000 in population.

The CHAIRMAN. The resident of Fort Wayne picks up his morning paper and really gets his weather report, does he not?

Professor MOORE. He gets the weather forecast.

The CHAIRMAN. With the actual station there there would not be furnished any news beyond what the local papers are giving to-day?

Professor MOORE. There would be, and that is what they are after.

The CHAIRMAN. What more would he get by the establishment of a station there?

Professor MOORE. Without a station he would get last night's forecast in the papers this morning. But if he had a local station he would get the forecast at 10 o'clock this morning—he would receive both in his papers. Also there is written out and posted in various places reports concerning the state of the crops and the weather. We also have a weather map that contains a synopsis of the weather all over the United States, and that weather map will furnish details of the weather this morning at 8 o'clock. That will

be valuable to the commercial interests. They want the station, and in a city of that size I am inclined to think they ought to have it, notwithstanding the fact, I am free to say, that I have no particular need of that observation for the purpose of making the forecast farther east.

The CHAIRMAN. You see, if you apply that rule, you would have to be multiplying stations tremendously.

Professor MOORE. We practically have stations now in every city of 100,000 population, and in fact, in nearly all where they have over 75,000 population.

Mr. SCOTT. When, in your judgment, no further stations are needed, you will quit estimating for them?

Professor MOORE. Yes; but that time will come when the country ceases to grow. As soon as a city gets to the point of 75,000 or 100,000 population, the people say right away that they want one of these stations. Toledo, Sandusky, Cleveland, and Columbus, Ohio, have weather bureau stations, and they get all of these details of the weather at 10 o'clock in the morning. Their commercial interests know in which direction they may ship with safety, and they have an opportunity to apply this weather data to their various industries, which they would not have unless they had the station right in their midst. The desire to get that information at the very earliest moment is so intense that I have had to adopt a very rigid rule, taking a uniform time clear from New England westward to the one hundredth meridian, and compelling our local observers to enter the data on the glass maps before the commercial organizations at precisely the same minute. We found that if Chicago had part of the data on its map ten minutes before it was on the map at Kansas City, a private message would shoot through to Kansas City before it was posted there, and some fellow would have the benefit of the information before the board had it. Hence, have been compelled to adopt this very rigid rule so that one board of trade shall not get the information on its weather map before the others, for it seems to be a very important thing to them.

Mr. COCKS. How?

Professor MOORE. If there is a drought in the cereal belt, and the weather indicates rain, the market may change several points as soon as it is known. If the corn is in the silk, and a cold wave starts up in North Dakota, or some other place, the moment the weather map shows it the price of corn is affected.

The CHAIRMAN. That is, for speculative purposes only?

Professor MOORE. I guess it is; and a great many others are legitimately interested in manufactures, and want to know what the coming prospects are, so that we have to hold our men up to rigid discipline.

Mr. LAFEAN. How do you arrange to advise the various boards of trade at the same time? How do they get the information?

Professor MOORE. In each board of trade we have a big glass map. The information arrives there a little bit before 9.30, Washington time, or 8.30, Chicago time. They get there the same reports that have gone to the Weather Bureau station itself. Up at the Weather Bureau station they are preparing the printed map that will soon go out.

At the board of trade the man is entering the data on the big glass map for the interest of the commercial people. We compel the man who enters the data on that map, no matter if he has information in his hand, not to give it to any member of the board before he enters it on the map at 9.30, Washington time. Then every board of trade has the same information placed before it at precisely the same moment. We have had to discipline men for disobeying that order and letting some man see the weather report before the specified time. You can easily see that if a city has a Weather Bureau station they do get details of the weather that they do not get through the daily forecasts that are published in the press. Our trouble now at the Weather Bureau is that every little city—not every one, but many of them, and many places where they do not need an observation, and where the local interests are not sufficient to justify the Government in establishing a full observatory—will want the Government to go to that large expense.

There are two or three communications there right now from newspapers and from small associations who demand that we shall put one of these big glass maps before them every morning. We answer them that their conditions are not important enough to justify the Government in constructing that map and sending an expert there at from ten to twelve hundred dollars a year to construct that map for them. We have a rigidly drawn line, where we believe the returns to come to the people will not justify the Government in going to that expense. So you see there is a good deal of authority vested in the Bureau.

Mr. SCOTT. Are there ever any offers made, from any localities, to defray the expense privately?

Professor MOORE. There are occasional offers made. The people say: "If you will construct the map we will enter the data." We decline those offers for the reason that we know how hard it is to develop our own men to do this work accurately, and we do not want to put the Government's stamp on anything that the Government does not fully control. Here are some letters now that I have written, declining to construct maps in different places, where they have gone over my head to the Secretary of Agriculture to compel me to install these glass maps—places where I do not believe the expense would be justified. We are concerned in holding down the growth of the service to a conservative growth just as much as you gentlemen are, and perhaps more.

The CHAIRMAN. Do you have any more trouble about using weather signs for advertising purposes?

Professor MOORE. No; we have secured two or three convictions, and now there is not much of that done. There is not much using of weather forecasts for advertising purposes now. The quack medicine manufacturers used to annoy us a great deal by using our Weather Bureau symbols and by putting out forecasts that purported to come from the Government. We stopped that.

Mr. HASKINS. That has been eliminated now?

Professor MOORE. Yes; we have secured two or three convictions.

The CHAIRMAN. Now we will pass to "General expenses, Weather Bureau." You ask for an increase of \$15,000 there.

Professor MOORE. Ten thousand dollars of that is for the supplies.

The CHAIRMAN. "Of this amount, \$10,000 is necessary for the sup-

plies, equipment, and incidental expenses required for additional stations."

Professor MOORE. These four additional stations.

The CHAIRMAN. "And \$5,000 for telegraphing reports, forecasts, and warnings on account of the growth of the service."

Professor MOORE. Yes. As the boards of trade increase their business they are continually asking for more details of the weather. We do not telegraph the entire set of observations from our nearly 200 stations to all the local stations. We telegraph to enough stations to give them a good idea of the weather over the whole country. Then in comes a board and says, "Here are two or three stations here of which we have no report. Our board has important interests and we would like that weather report." As a rule we will add those additional reports at the request of a board of trade. That goes on from one board to another. There is a continual increase in that way—a legitimate increase. As the country grows there is more and more distribution of the weather information. As an illustration of that, I will say that we now get a distribution of forecasts every morning to over a million addresses, without expense to the Government, through the various telephone systems.

At first they insisted that we should pay the telephone company for the transmission of the weather forecasts, as we pay the telegraph companies for the transmission of the same information. It looked like they had a pretty good claim, but we answered, "No; we will pay for a telegram over a telegraph line, to send the forecast to the headquarters of your telephone company—your rural company—and we expect you to send that over your line without expense to the Government, because it makes your rural service of much more value to the farmer. It will be a big advertisement for you." They contested it for some time. I saw that if we began to pay for telephone messages we would have to use up practically the whole appropriation in the payment of telephonic tolls, if we kept pace with the demand, and I was of the opinion that if we could get two or three big telephonic systems to send the forecasts from their headquarters down their rural lines that would make the rural phones so much more valuable that they would conclude they could do it without expense to the Government and make a profit. It finally occurred.

We induced one company after another to do it. Their subscribers began to say, "That is one of the best features of the system." and the farmers would say, "I will put in a telephone to get the frost warning, or the cold-wave warning at the very moment it is reported." As a business proposition the telephone companies were compelled to distribute the information, and we get it done without expense.

The CHAIRMAN. How do they do it? Do they call up all hands at the same time?

Professor MOORE. They can call up all hands at the same time if the order is sent over the line, but otherwise every subscriber, if he will call up the central, can get it sent to him separately.

The CHAIRMAN. Yet in these days of the daily papers, through the rural free delivery, they would get it?

Professor MOORE. They may get it, or again they may not. There is a gradual legitimate increase of expense for the distribution of

information, so I put in the estimate of \$5,000 to meet that, and \$10,000 for the equipment of the four stations, making \$15,000.

Mr. LAMB. The rural free deliveries distribute it and get it out, do they not?

Professor MOORE. Yes; quite a number do. There is no other item of increase in the bill that I know of, Mr. Chairman.

The CHAIRMAN. You have a new item in at the top of page 7, "Cables and land lines, Weather Bureau: For the purchase and installation of a cable between Devils Island, Lake Superior, and the mainland of Wisconsin, and for the building of connecting land lines including necessary labor and material, \$22,000."

Mr. SCOTT. I thought the last bill carried a fund for the installation of a cable between Devils Island and the mainland.

Professor MOORE. It did, but it was cut out, I think, in the Senate—or cut out by the conferees.

The CHAIRMAN. I know we did not cut it out. We put it in.

Professor MOORE. It did not become a law.

Mr. SCOTT. You do not mean to tell us that the Senate cut anything out of this bill?

Professor MOORE. They either cut it out or did not pass it.

The CHAIRMAN. I was under the same impression that Mr. Scott is, that it was in the last act, but the clerk says it was not.

Professor MOORE. I think your committee cut it out. That is my recollection. I think you discussed it, and agreed to it—

The CHAIRMAN. There must have been an awfully good reason for cutting it out, if we did. What was the reason; do you know?

Professor MOORE. I do not know. I was not here.

Mr. BROOKS. I think it went out on the floor on a point of order.

The CHAIRMAN. I think you are right.

Mr. BROOKS. Quite a number of things went out on that.

Professor MOORE. Yes; that was it.

I will say, as to the necessity for that cable, that the island is, as I recollect, about 80 or possibly 100 miles east of Duluth, and it is right in the fairway of vessels. They have had a number of wrecks from northeast winds driving up a heavy sea into the western neck of the lake there, and in a number of cases if they had had a cable over to that island, and somebody there who could call for assistance, they would have saved the vessels and several lives.

The CHAIRMAN. Is there a light-house on the island now?

Professor MOORE. There may be a light-house there now, I am not certain.

Mr. SCOTT. There are no commercial interests that make it likely that the cable will ever be established as a private enterprise?

Professor MOORE. No. There will never be more than 10 or 15 people on this island, probably; but the marine people claim that they will get a great advantage from being able to call for help in case of distress, and, as I say, it is a place where distress is very likely to occur. Where the lake narrows down at the western end, and where the northeasters drive in heavy seas, the vessels are driven in and wrecked there.

The CHAIRMAN. Warnings will not prevent that?

Professor MOORE. Warnings will not prevent that, but in fair weather all vessels passing this island will be reported to their owners in Duluth, and it will give several hours' warning to be ready for



docking the vessels. They claim that that will be one of the most important things they will get out of it.

The CHAIRMAN. Do they not get that now?

Professor MOORE. No, sir.

The CHAIRMAN. Those steamers, except during the period of storms in the fall, run almost on schedule time. Of course during a heavy gale in the fall that may be changed, but during seven-eighths of the open-navigation period they run practically on schedule time?

Professor MOORE. The big steamers do, but the small ones do not. The large steamers run right through most of the storms, but other craft will tie up when they see the danger signal.

Mr. COLE. You can not use the wireless telegraphy there?

Professor MOORE. Yes; we could use the wireless telegraphy there, but I am of the opinion that the wireless telegraphy is of the more expensive and least efficient at any place where you need permanent communication. I am not only of that opinion, but I know it is so.

Mr. BROOKS. Two years ago you were conducting a series of quite interesting experiments in wireless telegraphy. Are you keeping them up?

Professor MOORE. No. If you remember, two or three years ago, the President appointed a board to consider the subject of wireless telegraphy. We had devised an efficient system of wireless instruments. They were patented, and we have the apparatus of the Weather Bureau to-day. Just about that time, as we were beginning to establish wireless communication at our various marine Weather Bureau stations for the purpose of communicating with passing vessels, the Navy claimed that they ought to control it. They said that in case of war it would be better for the military arm of the Government to control all communication from the ocean to the shore, and they made a pretty strong claim.

The President appointed a board composed of three naval officers, including Admiral Evans (chairman), and General Greely, of the Army Signal Corps, and myself. As a result of the deliberations of that board, the Weather Bureau agreed to abandon all its coast stations and to turn over to the Navy the entire charge of the coast wireless telegraphy. The Navy, in exchange, transferred to the Weather Bureau all its work on ocean meteorology, which they had been doing independently for some years. So a very fair division was made. The Weather Bureau would have liked to have continued in the wireless work, and to have fully equipped its coast stations; but the Navy agreed to handle ocean weather business. As a result, there was a benefit which accrued to the Government, because we were enabled to eliminate the duplication of work due to two departments, the Hydrographic Office (of the Navy Department) and the Weather Bureau doing ocean meteorological work.

Mr. SCOTT. When you took over the ocean meteorological work, did you substitute your force for the naval men that had been there?

Professor MOORE. We did. Our local observers did the meteorological work formerly done by the Hydrographic Office.

Mr. SCOTT. Coming back once more to the Devil's Island proposition, I understand you to say that the two principal reasons why this station is wanted, are to send for help in case of vessels being in distress and to send notice in advance of vessels passing.

Professor MOORE. Yes; and also it is a good location for the display of warnings for the storms that may occur, and the observation will be of some value to the Duluth local forecaster; but neither one of the last two considerations, in my mind, would justify the expense of establishing the station. The station must be established, if at all, because of the necessity to commerce of having the vessels reported and to receive calls in cases of distress. I will say that I have received a great many communications from vessel masters and marine associations asking that this service be established there.

The CHAIRMAN. There must be a light-house on that island.

Professor MOORE. There may be; I do not know as to that.

The CHAIRMAN. We can get that at the Light-House Board, can we not?

Professor MOORE. The Light-House Board will give you an answer at any time, if you ask them concerning Devils Island, Lake Superior. I would say this, Mr. Chairman: I was on a board appointed by the President to consider the whole matter of wireless telegraphy internationally. Three of the members of that board were sent by the President to Berlin to take part in the international conference, the object of that conference being to adopt uniform license regulations that would compel each and every ship carrying wireless instruments to cooperate one with the other. As it is now, a ship carrying another make of instrument will not receive a message from some competing company. As a result, a vessel in distress down on the Atlantic coast sent a message that was received at one of these wireless coast stations, saying that the vessel was in distress—either out of coal or had broken the rudder, I have forgotten which—and they wanted the owners to be notified so that help might be sent. That message was received by a company which was competing with the company that had the instrument on the vessel, and it never was delivered to the owners because of rivalry.

Such a thing should not be allowed to occur. There should be a national and an international regulation that would compel every ship carrying a wireless instrument to receive and transmit everything it gets, no matter from what source it comes. In this conference, in which I had some part, I had written in the demands which the American representatives were to make over in Berlin—tentatively, of course—that every vessel of a certain tonnage would be compelled to carry wireless instruments, and also be compelled to take midday and noon observations of the pressure of the air and the direction of the wind and flash it out, and to repeat every observation of weather received from any other vessel. By that means, in a few hours, a complete weather report would be swept into both continents, Europe and America—the weather data from all over the Atlantic. At Washington we could take that data and chart it right here, giving the location of each ship sending the message, and we could determine the location of all storms dangerous to navigation simply by the same methods by which the observations were collected on that ocean. The information would be flashed back from ship to ship.

There is a storm, we will say, of a destructive character, south of the Bermudas, moving toward the northeast, and all the rest of the ocean is clear and safe. We then know that, to a certain point, ocean travel will be as safe as lying on that couch [indicating]. But in

order to do this there must be power vested in the various governments, by international agreement, so that all vessels will obey the same rule.

Mr. SCOTT. What was the outcome of the conference at Berlin?

Professor MOORE. Our people are back, but I have not found out how much of this meteorological part was agreed to at the conference there.

The CHAIRMAN. You were not one of the three? You did not go over?

Professor MOORE. I was to go, but I could not get away.

The CHAIRMAN. I have been informed by the clerk that he has ascertained that there is a light-house on Devils Island.

Professor MOORE. We have arranged now so that we are getting wireless observations of the weather from some of the transoceanic ships. Some days we will get half a dozen, out at sea three or four hundred miles, and they are valuable to us.

Mr. LAMB. How do you catch them?

Professor MOORE. They flash their observations in to the shore. Only four or five days ago we received a wireless message from a vessel 300 miles due west from San Diego, Cal., which showed an abnormally low barometer. In connection with the San Diego barometer reading we were able to determine that there was a storm there. We predicted rain for lower California, and it occurred within thirty-six hours. That rain was over the southern part of California. That is merely a little illustration. I think it has little or no value on the land. Land communication is better, cheaper, and more efficient.

Mr. LAMB. What is that?

Professor MOORE. I say the metallic communication on land is cheaper and more efficient than the wireless method.

Mr. SCOTT. I presume that this message which you say came in from west of San Diego was caught by some station near San Diego?

Professor MOORE. It was caught by some one of the wireless stations. It may have been received at the Farollone Islands and telephoned to our San Diego office.

Mr. BOWIE. That is not all the money you want, is it?

Professor MOORE. I am very modest this time. You have treated me well in years gone by. I presume, Mr. Chairman, in the last ten years there have been probably 45 new stations of the Weather Bureau established. Some years you have established quite a number, so we are getting to the point where we do not need to establish very many each year. There will always be here and there three or four which ought, probably, to come in.

The CHAIRMAN. The committee will notice on the bottom of page 6 "Buildings, Weather Bureau." That is the same item we have kept in for several years "for the purchase of sites and the erection of not more than 5 buildings for use as Weather Bureau observatories," and so forth. That represents the progress, you might say, of the Weather Bureau plant.

Professor MOORE. Yes. We have now between 40 and 50 of our own buildings. I was told yesterday that owing to the increased cost of material or the increased cost of lumber we probably would not be able to buy sites and build more than three, but we are progressing all the time. I have here a report of a building that we constructed at a little place in Arkansas last year—Bentonville. It cost about

\$5,500. The same building in another city, where the Secretary authorized me to construct a building——

The CHAIRMAN. What city?

Professor MOORE. Anniston, Ala. The bids for constructing that building were \$12,996, \$9,998, and \$9,763.

The CHAIRMAN. For the same building?

Professor MOORE. For the same building. At Birmingham, Ala., where we got bids for a building, we asked for bids on the same specifications we had at Springfield, Ill., where the building cost a little more than \$10,000. The result of this was that the lowest bid was about \$17,000.

The CHAIRMAN. What is the use of having two stations, one at Anniston and one at Birmingham? What is the geographical location of those two towns with reference one to the other? One is right south of the other, is it not?

Professor MOORE. One is an observation station.

The CHAIRMAN. One is right south of the other?

Professor MOORE. Oh, no. Anniston is about midway between Atlanta and Birmingham.

The CHAIRMAN. Which way is it?

Professor MOORE. It is east of Birmingham—southeast.

The CHAIRMAN. How many miles?

Professor MOORE. I could not tell you, but it is about midway between that and Atlanta, as I recollect it.

The CHAIRMAN. Mr. Bowie says that Anniston and Birmingham are only 63 miles apart.

Professor MOORE. We have some that are nearer than that. I would like to say something more on this matter of buildings, Mr. Chairman. I want to say a little more in regard to the increased expense of erecting these buildings. At Sandy Hook, where it was the intention last year that we should erect a building this year, we advertised in three papers and received no bids. We sent a local man out to solicit bids, and he finally got a bid for that building of at least 100 per cent over what we thought the building ought to cost. As a result, I recommended that the Secretary of Agriculture cancel all these bids. They have been canceled, and I believe it is apparent that we can not construct these five buildings for \$53,000. You ought to increase that to \$60,000.

The CHAIRMAN. No; under the language of the bill it says not to exceed five.

Professor MOORE. We can not construct five. It was rather the idea that we would get five; but we will probably get not more than three or four of them.

The CHAIRMAN. You will be progressing fast enough all the time?

Mr. SCOTT. Have you said all you care to about this question?

Professor MOORE. Yes, sir.

Mr. SCOTT. Have you anything special to report in connection with the Mount Weather enterprise?

Professor MOORE. We have continued our work there. Our principal building is now under roof. That is the physical laboratory. Our kite and balloon work is well along. We are getting a good series of observations very high up in the air from Mount Weather. Our magnetic observatories are completely installed and are working nicely. The physical laboratory is nearly under roof, and we will

begin this spring to install the apparatus in it. There is still needed one building more at Mount Weather, and that is what we will call a solar-physics observatory. It is a small building and will probably cost \$8,000 or \$10,000. The apparatus to go in it will probably cost \$10,000 or \$15,000 more. That observatory will be used to measure the absorption of the earth's atmosphere. We have found what we did not know a few years ago, that the atmosphere itself absorbs fully one-half of the entire solar energy, so the heat of the air is a very important matter to the meteorologist.

When we read the temperature on a thermometer in a room, or out in the sun, even, we measure only the intensity of the solar energy. If that intensity fell on that book or on that glass or on this woolen cloth, the same quantity falling on these various substances would give an entirely different temperature. We are only measuring the temperature of the air with our thermometers now. At this institution we will measure the quantity instead of the temperature. We will measure the quantity that reaches the earth and the quantity absorbed by the air. You may say, "How do you know; how can you tell?" It is not such a difficult problem after all. We are able to measure the absorption of the earth's envelope by taking a measurement of the quantity that reaches the earth with the sun at different angles. By a very not very difficult mathematical computation we can determine what the quantity of absorption is of the earth's air. The amount of absorption is due to the amount of water vapor and dust in the air. Dust? You say the air is just as diaphanous as this piece of glass, but the air is full of dust. At that institution we will measure the quantity of heat in the air.

That is absolutely essential, if we are to gain any real thorough working basis for the art of weather forecasting. We must go to the science that is back of our art. There is no institution in the world that is doing this work as we want to do it at Mount Weather. We are spending a little money there to make an experimental station—one out of the 100 or more stations of the Weather Bureau—that we are morally certain will bring a good result for the expenditure which this committee has from time to time authorized us to put in that institution.

The CHAIRMAN. How much money have you spent there up to date?

Professor MOORE. Last year we had spent \$119,000 or \$120,000. Since then we have spent probably \$25,000 more, or maybe \$30,000.

The CHAIRMAN. Making a total of how much?

Professor MOORE. That would make a total of \$150,000.

The CHAIRMAN. No; it must be more than that, because last year it was pretty nearly \$200,000.

Professor MOORE. No; last year it was \$119,000 and some odd dollars. You asked how much it would cost, and I said inside of \$225,00; and you said, "The members of the committee will remember what he has said, that he will not spend more than \$225,000." We will probably spend less than that amount.

Mr. SCOTT. I thought your estimate was originally that you would not spend over \$200,000?

Professor MOORE. Only in recent times have we begun to realize what an important function the minute dust mote that is in the air

has in the problem of air physics, and in our physical laboratory that we are now putting under roof we will have the delicate apparatus that will count the number of dust motes that are in this room; and I will say that the number in this room now is 3,000,000 or 4,000,000 per cubic centimeter—about a third of an inch. You think this impossible. You say, "How can you count them?" We have counted as high as 30,000,000 in a centimeter, with the use of the Bunsen flame; but you will find in large rooms like theaters and hospitals and other places of large assembly 5,000,000 dust motes per cubic centimeter. Out there in the park there are several hundred thousand per cubic centimeter. Up on a high mountain it is less, and out on the ocean it is less. These dust atoms are nearly all vegetable, and not mineral.

We have learned one important function. That is this: If you were to eliminate the dust motes from this room—if there were no dust in the air here—each one of you gentlemen would be like a star stuck up there in a black firmament. If you have observed, when there is no moon, on a perfectly moonless night, if you look at the stars they are like bright, glittering objects stuck into a black background. If there were no dust motes in this room each one of you would be visible, but the interval between would be inky black. You would see the walls, but the space between the walls would be inky black. So, if you were to do as I have done with a box in experimenting, cut a hole in the wall here, and one in the wall there [indicating], leave the room dark, and go out and send a powerful electric light in through that hole and out through that one, you would not see it at all. You could not illuminate the room without dust motes.

Mr. BROOKS. Are those motes refracting media?

Professor MOORE. They refract light. They take up light and scatter it and diffuse it, and thus illuminate the whole space.

You say, "What has that to do with meteorology?" We have gone further, and we find that without this same atom you could not produce rain. The presence of dust motes in the atmosphere is such that probably every little minute droplet has a little atom for the nucleus. You could not get that fog out there, as you see it now, without these dust motes at the center of each little minute droplet. We want to study, in the physical laboratory, and count up these motes. We want to take samples from here, from the Farallones, from New York, and so forth, and analyze those motes. We want to count them every day and determine their number. We want to count them before the rain falls, and even during the falling of the rain. That is only one of probably, I might say, 100 problems that I could outline to you that we want to investigate at these experimental stations up there. That will keep employed probably 25 men all the time, and will cost probably, for installation, in the neighborhood of \$200,000.

Back of all this weather forecasting is the science of which we know almost nothing; but, as this committee agreed several years ago when I told you something of the purpose we had in mind, it would be better for us to spend a little money at one first-class experimental station than to be content with doing it in a rather imperfect way.

Mr. SCOTT. You say these dust motes are vegetable in origin?

Professor MOORE. Almost entirely.

Mr. SCOTT. They are not in the nature of bacteria?

Professor MOORE. No; they are separate and distinct from bacteria; but bacteria attaches itself almost entirely to these dust motes. You find them associated together.

Mr. BROOKS. What is the original source of these vegetable dust fragments?

Professor MOORE. They are from the earth itself, and probably from the great cosmos, and from meteors. Probably hundreds and thousands, and millions of them strike upon our atmosphere every twenty-four hours. The majority of them, by reason of their fearful velocity, are consumed by striking the top of our envelope of air.

They will form some of the dust; and they are not all mineral by any means. Some meteors shoot through our atmosphere and escape from the attraction of the earth. Most of them are consumed. A great many of them reach the surface of the earth, and they are then called meteorites. There is one source of dust. Then, it is more than probable that in the outer space there is contained more or less what we call cosmic dust. That is the dust that we came from, the same place we came from, on our earth—we do not know exactly where. But the function of this dust is a most important one to meteorologists. Again we have learned that the gases of the earth, separate from the dust entirely, are broken up into atoms, and the broken up atoms of gas form most of these very wonderful radiations that you hear about, like the radiations that come from radium. They are shot out into space. They are not radiant light; they are radiant matter.

We do not know just what the function of the broken-up atoms of gas, and the function of the dust atom itself, is in regard to precipitation. We want to know. That is what we will take up at this physical laboratory. These broken up atoms we call ionization. They are supposed to have an important function in rainfall also. Then we want to determine more accurately the methods of measuring wind velocity.

Mr. BROOKS. Is this dust problem in any way related to the presence of smoke in cities?

Professor MOORE. The smoke in cities is composed largely of the mineral dust and sulphurous gas. It, of course, furnishes a part of the dust that is in the air, but that dust is large in comparison to the dust I am speaking of.

Mr. BROOKS. Will these researches that you are talking about, in their ultimate results, lead you to deal more successfully with the dust problem in cities?

Professor MOORE. Yes; while it would be a little bit foreign to our work, it might incidentally occur that we would get a better method of combustion, something that would more perfectly consume fuel and leave no residue, like that which pours out of the chimneys now. You know the dust keeps off the sunshine. Disease bacteria will thrive under smoke-filled air, when it would be completely destroyed by the action of sunlight.

There are a great many lines of inquiry that we want to take up at Mount Weather. Some of them may not bring immediate results, but that is the one place where we want to have free opportunity to experiment and to do things that may now appear foolish, but which ultimately may be useful. It is the only place in the service where we give ourselves over to experiment.

The CHAIRMAN. How many people have you employed at Mount Weather now, Professor?

Professor MOORE. We have quite a number of mechanics now, because we are moving, and the laborers are still working. The permanent working force—

The CHAIRMAN. I mean the scientific, technical force?

Professor MOORE. There are quite a few laborers who help them. For instance, we have five or six laborers at about \$40 a month, doing the heavy work around, helping these technical men. The working force there is about 14. I could get it for you in a minute, but it is about 14.

The CHAIRMAN. What does the force consist of?

Professor MOORE. There is Professor Humphreys.

The CHAIRMAN. Does he live there winter and summer?

Professor MOORE. Yes, sir; the force remains there the entire year. Professor Humphreys was formerly professor of physics at the University of Virginia, and he came from Johns Hopkins. He was a Ph. D. man there. He is the supervising director. Under him we have Doctor Fassig, another Ph. D. man. His work is in connection with the upper-air problems. He sends up the kites and balloons, etc. As assistant to him is Dr. Cleveland Abbe. Doctor Abbe is a Ph. D. man also.

The CHAIRMAN. They all get their houses and living?

Professor MOORE. Quarters, fuel, and lights are furnished them. Then Mr. Miller, our magnetic man, a young man who has only been about four years in the service, receives \$100 and allowances.

The CHAIRMAN. Quarters?

Professor MOORE. And his quarters. Allowances means quarters, fuel, and light. Then we have an observer, clerk, and telegraph operator who receives \$1,000.

The CHAIRMAN. And his quarters?

Professor MOORE. They are all furnished with quarters and heat.

The CHAIRMAN. In what shape are these quarters?

Professor MOORE. They all live in the upper part of the administration building at the present time. We are building one cottage and office building adjacent to the physical laboratory that will furnish living quarters and office room for Doctor Fassig, the man in charge of the upper-air work. That will take him out of the main building.

The CHAIRMAN. Can they keep house in those quarters?

Professor MOORE. Yes. There is only one man who is married, Doctor Fassig. We are putting him in the cottage, where he will have four rooms above and a dining room and kitchen below.

Mr. LAMB. I would like to hear more about those balloons. It would be interesting.

The CHAIRMAN. Do these men remain there constantly?

Professor MOORE. They remain there continuously, except that I have just given Doctor Fassig leave of absence for six weeks to complete a course of lectures that he began several years ago at Johns Hopkins, before I got him to come to Mount Weather, and not wanting to break them off short I have allowed him to go back to take up for six weeks the course of lectures. A lot of the work that pertains to Mount Weather he is doing at the laboratory in Johns



Hopkins. I go up there once in a while, and in the summer for a couple of months.

Mr. COLE. Do you keep records of the results of your scientific investigations?

Professor MOORE. Yes, sir; but we have been largely concerned so far in building and creating. It is only within the last year that we have gotten any apparatus working.

Mr. COLE. Is that in any of your reports?

Professor MOORE. No; I do not think it is. In my report of last year, the year ending 1905, I devoted the whole report to writing up the history of Mount Weather and its objects, somewhat on the line I have given you here. That will be found in this report.

Captain Lamb, you were speaking of the kites and balloons. We have there a very advantageous location for getting upper-air readings. There is a valley on each side of us there, the Loudoun Valley and Shenandoah Valley. The mountain projects up above these two valleys about 1,200 feet, and the valleys are about six or seven hundred feet above sea level, giving 1,800 or 1,900 feet altitude.

We purpose to put up apparatus with our kites and keep it there just as long as we can, at a considerable altitude, for the determination of the thermal variations in the temperature. From some preliminary surveys that we have made we are certain that at an altitude of 3,000 feet above that mountain you will find it just as warm at midnight as it is in midday in July in the hottest weather—practically the same. All the details of that we do not know. In another year we shall keep our instruments up all summer, and keep them up as much as we can in the winter.

We are making now an experiment with little balloons about that diameter [indicating], some made of rubber and some made of paper; and we have a power plant there, with a 35-horsepower engine, and an electrolyzer, for decomposing water and getting the hydrogen gas. We have a tank for storing the hydrogen gas and we purpose to compress that gas and send it in cylinders to a number of western stations, and ultimately to equip a number of those stations with little collapsible balloons. We have a little aluminum case which holds a barometer, a thermometer, and a hygrometer, and the balloon will carry this case up into the upper air. We purpose, when we have developed our balloons to a little higher degree of efficiency—the instrument case having been already developed—to equip a large number of our western stations with them. It is a new way of exploring storms. It is a patented device. We will pick out a given storm that overlies the Rocky Mountain Plateau, or a given cold wave, and we will explore that storm. We will say that that [indicating] is the storm. It is extending from the Mississippi River to Denver and from Duluth to northern Texas.

Then by telegraphic orders I will direct three of the stations, in each quadrant of the storm, to liberate a balloon, say, at 9 or 10 o'clock. They shoot right up through that storm and they record the pressure, the temperature, and the humidity. When the balloons get up to an altitude of 10 miles they will explode. We know, because we can compute what the pressure will be at 10 miles high, and get pretty close to it. The pressure of the gas is increasing on the inside and the pressure on the outside is decreasing, until it gets to a point where it will explode. We can explode them at 10 or 15

miles high. Then the instruments slowly descend to the earth, with the records. We have pens to draw lines on the records filled with ink, which will work from 100° below zero to 100° above. It is pretty difficult to get ink to work under those conditions. When this case of instruments is found by anybody it will be returned. Most of them will come down in the daytime and will be seen. There will be a reward for the return of the instrument to the Weather Bureau. I do not know what the reward will be as yet; probably \$3 or \$4, or maybe \$5. They will all go back to Mount Weather. There they will be opened. And in this way, for the first time, we will be able to study the mechanics of the storm itself. That is the only way we can get the knowledge.

Mr. BROOKS. Are there any other Governments doing that kind of work?

Mr. MOORE. There are a number of European stations, independent stations, that fly kites and fly balloons. They have a number that have gotten temperature records up to 10 miles high, temperature records of over 100° below zero, but there is no Government anywhere else in the world that could plan a system like that, because they have not the stations under one central authority and have not the territory under one Government.

Mr. COCKS. Russia would have.

Professor MOORE. But she has not a telegraph system and does not take as kindly to those things as you gentlemen do.

Mr. FIELD. With reference to the rainfall there is a question or two I would like to ask. A year or two ago I made inquiry of you with reference to the prevailing idea that in the arid country the rainfall is gradually increasing.

Professor MOORE. That is the popular opinion.

Mr. FIELD. Yes; but the impression in the public mind is such that a great many people may rely on it to their prejudice. Do you think there is to be a recurrence of dry years, just as there has been in the last three years a very perceptible increase in rainfall?

Professor MOORE. I have not any doubt of it. Many people have written to me and have said that they have been advised to buy land in this region now, and that it is two or three times what it was ten years ago in price, but that it is offered for sale to them on the ground that there has been a permanent change in the climate. They say they have had such-and-such rainfall for the past six years, and six years is a long time, and that therefore the climate has changed. I have answered and said no, it has not changed. It is true there has been a period of years in which there has been more than the average rainfall. But do not be deceived, there will come years when it will be just as short as it has been in excess.

We find, right in the arid regions, that during a long period of observations, thirty, forty, or fifty years, the average of the first ten years is precisely the same as the average of the last. I do not mean to say that there has not been a change in the climate on this continent, for there has been a great change in the climate.

Mr. FIELD. What is the longest cycle of either dry or wet weather?

Professor MOORE. I can not answer that offhand, but my opinion is that the present long period of abundant rainfall over the great cereal plains of this country is the longest we have ever had a record of.

Mr. FIELD. At present?

Professor MOORE. At present; and I as confidently look for as long a period of drought. I think the people ought to take cognizance of that, instead of proceeding on the theory that they are going to have an abundance of rainfall and big crops; they should realize that the time is now coming when we will have to go through a drought and a shortage of crops.

Mr. BROOKS. There is another popular misconception, that while the average rainfall has not increased materially, the distribution has been equalized; for instance, that 13 inches twenty years ago was the result of eight or ten heavy storms, and now it is the result of 50 storms, spread along through fifty weeks. Is there anything in that?

Professor MOORE. Not exactly the way you state it; but there is something in this, that the same amount of rainfall is better conserved, because of better methods of cultivation.

Mr. BROOKS. That goes to the cultural methods?

Professor MOORE. There is one other test. We are breaking up virgin soil and planting trees. While not increasing the rainfall, it will make the same amount more efficient and more profitable, because the soil is broken up and there will not as much run off. It is retarded and kept from running off, and there is not so much evaporation. The same amount of rain that you got before is more perfectly absorbed.

Mr. FIELD. That would not make what has heretofore been an arid country a safe agricultural country?

Professor MOORE. No.

The CHAIRMAN. Professor, how many wet seasons have we had, in your judgment, consecutively?

Professor MOORE. Six seasons, from my recollection.

The CHAIRMAN. In that time, as I understand it, Mr. Brooks thinks that dry farming has been built up?

Mr. BROOKS. In four years the dry farming method has come in.

The CHAIRMAN. Suppose we strike a number of dry seasons—I wonder whether we can carry on that dry farming?

Professor MOORE. Probably not in the places where you have attempted it.

The CHAIRMAN. We are inducing a number of people to move into this dry country, and if a dry cycle follows a wet season they will get in trouble.

Mr. HENRY. Mr. Mead made the point on that last year.

Mr. BROOKS. The whole theory of Mr. Mead's work is to me a warning and demonstration of what the limits of successful dry farming are. Its limits are very closely defined. The Department is working along exactly the line Doctor Moore has now outlined in counteracting this overconfidence.

The CHAIRMAN. It is a land boom.

Mr. BROOKS. Yes.

Professor MOORE. A great many people have bought land, I am very confident, from letters that I have received, in a region which in the majority of years will not be productive.

The CHAIRMAN. Lands that are not commercial propositions?

Professor MOORE. Yes. I have written a number of letters to people who have asked me for advice advising them not to buy any-

thing on the ground that it will be productive unless it was productive ten years ago.

Mr. SCOTT. You stated a while ago that we would not have any rain except for the dust particles in the air.

Professor MOORE. Precisely.

Mr. SCOTT. I presume that implies that the fewer dust particles we have in the air the less rainfall we are likely to have.

Professor MOORE. It may be that it would depend somewhat on the size of the dust particles. That we do not know yet.

Mr. SCOTT. The question I was leading up to is whether, in your judgment, it is possible that the breaking up of this country out in the semiarid West might perhaps create a sufficiently large quantity of dust particles to make any difference in the rainfall.

Professor MOORE. I should think not. I think the dust particles that come from such action would not enter into this question.

Mr. SCOTT. Another thing. In relation to the winds in the Western States, I will say that I have lived all my life in eastern Kansas, and I know that we do not have the winds there that we did twenty-five years ago.

Professor MOORE. You have more trees to restrict the blow. You do not feel it as much near the ground.

Mr. SCOTT. Another fact in regard to that is this: Dr. Frank H. Snow, of the University of Kansas, has been making a daily weather observation for more than forty years. His wind instruments are on top of the State University, which is on the summit of a hill just about 300 feet above the surrounding country.

Professor MOORE. Yes.

Mr. SCOTT. The university building is quite high, so that if there is a wind he gets a record of it.

Professor MOORE. Where is it located?

Mr. SCOTT. At Lawrence, Kans. He reports that there is very much less wind now than there was forty years ago when he began.

Professor MOORE. We have some records for the last thirty years. I would like to compare that. Sometimes an instrument that is left to work for a long time, and which is not properly lubricated, will show a deficiency in the blowing of the wind, when it is an instrumental fault, so I would want to compare that with our instruments. We take down an instrument once every seven days and replace it with another that we know is thoroughly lubricated, to be sure that there is no defect in the apparatus. I am not saying that he is not right, because of the fact that the trees that have been planted in that region will restrict the blowing of the wind; but I am quite certain that there has been no change in the general high velocity for, say, an altitude of 50, 60, or 100 feet. I am going to lecture in Emporia next week, if I get away from the committee on time, and I would like to ascertain about the Lawrence record.

Mr. SCOTT. I wish you would stop at Lawrence and talk with Doctor Snow.

Mr. COLE. Is there any difference in the mean temperature of the United States now and fifteen years ago?

Professor MOORE. I should say not.

Mr. COLE. There is less snow out in Ohio than there was.

Professor MOORE. No; if you go back to Thomas Jefferson, and he was a pretty good authority in his day, you will find among his papers

in the State Department, where he wrote: "It is apparent that the climate of Virginia has changed. The old inhabitants here tell me that they remember when snow lay on the ground four months every year and they rode in sleighs. Now, he says, it is rare that we get enough snow to have a sleigh ride. He said it is apparent the climate of Virginia has changed since 1607 when the settlers came into Jamestown. But it has not changed."

The CHAIRMAN. There might have been some reason. It was a thickly wooded country, was it not?

Professor MOORE. There has been a great deal of clearing in that time, but that would not change it. The change was in the man who was telling the story. We measure things by a different standard as we grow older. Every man when he gets to be 50 years of age will look back and think of one great snowstorm, and he will say: "We had snow 4 feet deep all winter long," because all he remembers as he thinks back is the one snowstorm. He remembers the abnormal, and in his mind brings it down to the present day and compares it with the average. But it is not a fair comparison.

Mr. COCKS. Like the blizzard of 1888.

Professor MOORE. Precisely. When you get old enough you will be telling your boys that that occurred every winter.

The CHAIRMAN. We are very much obliged to you, Professor.

The committee (at 3.50) adjourned until to-morrow, Wednesday, January 9, 1907, at 10.30 o'clock a. m.

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COMMITTEE ON AGRICULTURE,  
HOUSE OF REPRESENTATIVES,

*Washington, D. C., Wednesday, January 9, 1907.*

The committee met at 10.30 o'clock a. m., to resume consideration of the agricultural appropriation bill, Hon. James W. Wadsworth in the chair.

The CHAIRMAN. We have Doctor Melvin here this morning. He is Chief of the Bureau of Animal Industry.

**STATEMENT OF DR. ALONZO D. MELVIN.**

The CHAIRMAN. Doctor, I notice the first slight amendment in your salary roll is a slight increase for yourself. That was the salary that your predecessor had, was it—\$5,000?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Of course the work of the bureau has been greatly increased by the passage of the meat-inspection bill. The first amendment, on page 8, under your paragraph, "General expenses, Bureau of Animal Industry," will be found in italics: "and for the construction and alteration of buildings thereon as may be necessary from time to time in the discretion of the Secretary of Agriculture," and then comes "to establish, improve, and maintain quarantine stations," and then in italics, "and construct and alter buildings thereon as may be necessary from time to time in the discretion of the Secretary of Agriculture." That seems to be a repetition.

Doctor MELVIN. The first refers to the experiment station and the second to the quarantine stations.

The CHAIRMAN. Oh, yes; the Bethesda Station; I see. Tell us the needs of that in your own way, and the character of the buildings you propose to put up, and the proposed cost.

Doctor MELVIN. The buildings at the experiment station——

The CHAIRMAN. That is in Bethesda, near Washington?

Doctor MELVIN. Yes, sir. The character of the buildings is governed very largely by the nature of the experiment which is being conducted, and it is almost impossible to anticipate at the time estimates are made what kind of buildings will be required for the coming year or during the next fiscal year. These buildings, with the exception of one which is used as a laboratory and the residence on the station, are very much of a temporary nature. They are built of wood, without any elaborate cost, and are, in fact, quite a temporary construction. It would facilitate the work very much, I think, if we could have the privilege of making these changes within our regular appropriation as we may find funds to do that.

Mr. SCOTT. How long has the Department been operating that station at Bethesda?

Doctor MELVIN. I think about six or seven years.

The CHAIRMAN. It was operated before it went to Bethesda, I will say to the gentlemen; it was operated first out by Benning, was it not?

Doctor MELVIN. Yes, sir.

Mr. HENRY. You have been out there something like eight years, have you not?

Doctor MELVIN. Yes; probably.

The CHAIRMAN. Eight or nine years. They outgrew that other place.

Doctor MELVIN. The Benning property was leased and the Bethesda property is in the possession of the Government.

Mr. SCOTT. How much ground is there out there?

Doctor MELVIN. There are about 50 acres.

Mr. HENRY. Have you bought any since the first purchase?

Doctor MELVIN. Yes; a second purchase was made about three or four years ago.

Mr. HENRY. Some 50 acres?

Doctor MELVIN. The superintendent advised that a further purchase be made as early as possible as an economic measure on account of the rapid increase in the value of property in that vicinity.

Mr. HENRY. Lying back, is it?

Doctor MELVIN. Yes, sir.

Mr. HENRY. They talked of that several years ago.

Doctor MELVIN. It is possible for him to raise green fodder during the summer and get several crops. Most of these animals are necessarily confined to small quarters, and if they can be given green fodder it keeps them in much better condition.

The CHAIRMAN. Can not they buy green fodder?

Doctor MELVIN. It costs more, in this way——

The CHAIRMAN. Perhaps in actual cost of the fodder, but when you take the interest on this land into consideration, I doubt whether it would cost more. How much is land worth out there; is it worth \$200 or \$300 an acre?

Doctor MELVIN. Some is worth more than that. I think that land which he has in mind to purchase could be purchased probably for

\$200 or \$300 an acre; but we have to have a large number of laborers there to take care of these various animals; for instance, we would have to have one man to take care of just a few animals, and no others; because it would be dangerous to have a man passing from one group to another, as he might transmit disease from one group to another. While these men are not employed in taking care of animals, they can be assigned to farming, plowing, and harvesting this green fodder, and it has worked very satisfactorily in that way.

Mr. SCOTT. What is the nature of the experiments you are conducting there?

Doctor MELVIN. They are, of course, quite varied. We have a number of experiments—three or four different sets of experiments in reference to tuberculosis. We have others in reference to scab in sheep, and another as to wireworms in sheep. We have some milch goats that are affected with a disease which we are investigating.

Mr. SCOTT. In a general way, you are studying diseases of animals?

Doctor MELVIN. That is what it is for, yes; it is for that purpose.

Mr. SCOTT. Can you give the committee an idea of the buildings you are likely to need; is it something more than stock sheds?

Doctor MELVIN. Well, perhaps a little better than that; a little more permanent than what you would call a stock shed; but still not an elaborate building.

The CHAIRMAN. A wooden building?

Doctor MELVIN. I can say at this time that we have not any buildings in mind, but we have from past experience learned that if this provision were made it would be very wise because we have felt the necessity of having such provision in times past.

The CHAIRMAN. The idea, as I understand it, is to put up rather cheap buildings that in course of time may be burned; that you will follow somewhat the hospital theory of burning the buildings when they get old and perhaps become impregnated with germs.

Doctor MELVIN. Yes.

The CHAIRMAN. They are not expensive brick buildings that you contemplate?

Doctor MELVIN. No, sir; we do not anticipate that.

The CHAIRMAN. Now please pass along and tell us about that quarantine station in Baltimore, I think it is.

Doctor MELVIN. We have a quarantine station for imported animals at Halethorp, Md., which is a small station on the railroad near Baltimore and between Baltimore and Washington. The buildings have been erected for quite a long time; I think they were constructed by the Treasury Department before the Department of Agriculture had control. These buildings are in very poor condition, and the fences are in poor repair; and it would cost to remodel them practically what new buildings would cost. There is a prospect that a race course will be built adjoining this piece of land, which would make it undesirable as a quarantine station.

The CHAIRMAN. This is rented land?

Doctor MELVIN. Yes; rented land. We had in mind to obtain permission from the War Department to use part of Fort McHenry, which it has been decided to abandon as a fort and use as a supply warehouse. If this permission could be obtained from the War Department the object would be to erect on that land some wooden

buildings, not necessarily very expensive, and there establish a quarantine station. This fort, as you know, is on the water front. Animals could be unloaded directly from the steamers to the fort by means of a lighter. At present they have to be unloaded from the docks in Baltimore and then transferred 9 or 10 miles to Halethorp, which, of course, is very undesirable from a quarantine standpoint. I am unable to state whether we will be able to obtain permission from the War Department or not, but we hope to get it. The city of Baltimore, I understand, is making quite an effort to obtain the use of this fort as a park, and whether they will prevent us getting this permission or not I do not know.

Mr. HENRY. The Government bought and owns land in New Jersey?

Doctor MELVIN. Yes; at Athenia, N. J., we own the land and erected the buildings thereon.

Mr. HENRY. That is accessible only by railroad, is it?

Doctor MELVIN. Only by railroad; yes.

Mr. HENRY. Doctor Salmon endeavored to secure land that would be accessible by water?

Doctor MELVIN. Yes; but we have none on the water. Our place at Boston is about 30 miles from the docks.

The CHAIRMAN. You have a provision here at the end of your paragraph on page 9 which reads:

*Provided, That the Secretary of Agriculture is authorized to expend not to exceed \$20,000 of the amount hereby appropriated in the purchase of additional land for the experiment station of the Bureau of Animal Industry in Bethesda, Maryland.*

Now, what price do you propose to pay for this land? Have you made any inquiries as to what it will cost you?

Doctor MELVIN. Yes. The superintendent of the experiment station has obtained figures regarding the cost. I neglected to bring those figures with me this morning, however.

The CHAIRMAN. Have you got it, approximately, in your mind?

Doctor MELVIN. About from \$200 an acre to \$300 an acre, I think.

Mr. SCOTT. You figure, then, on buying about 100 acres of land?

Doctor MELVIN. Not entirely. There may be a strip of land lying in front of the station, a small strip, which will cost more than that. There is a piece of land lying between our station and the main road which, I understand, is to be subdivided and made into building lots, with the probability of an alley abutting against the residence of the station, which would make it very undesirable. With the purchase of a small strip in there it would make the present appearance of the station very much better.

The CHAIRMAN. I understood you to say that your reason, or at least one reason, for wishing to buy the additional land was that it would enable you to raise some more green fodder, which could be raised to an advantage?

Doctor MELVIN. Yes.

The CHAIRMAN. Is there any other except this economic reason; do you need additional land for the proper conduct of your experiments?

Doctor MELVIN. Well, we have felt that at times the animals would be better if they could have more room to exercise in.

Mr. HENRY. You have wanted to buy that front strip of land for



some years, but they have been asking a high price for it, have they not?

Doctor MELVIN. Yes. Well, I think that that proposition included the whole tract. This that we now have in mind would be only a small tract of a few yards in width lying directly in front of the station. This expenditure would of course be made only in the event of our being able to get it out of the general appropriation. It is not in addition to the amount asked for, but only in the event of some unexpended balance that might be used for this purpose.

Mr. HENRY. In other words, by practicing economy in other directions you might save this money to buy this land with?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. It does not look like a very good business proposition to pay \$200 or \$300 an acre for land to raise fodder on.

Doctor MELVIN. Well, I am quoting the statement of the superintendent in saying that it had paid in a financial way. Perhaps that does not take into account the interest on the money, but the value of the fodder has been such that he thinks it has paid. We have been able to raise fodder at a great deal less than it would have cost the Department for the same amount.

Mr. SCOTT. With the land you have there now, are you able to keep the men whom it is necessary to have to handle the stock employed when they are not engaged with the stock?

Doctor MELVIN. Probably not all the time. We try to keep them employed as much as we can, because we find they are more contented and give better service when they are employed than when they are not employed all the time.

The CHAIRMAN. How many animals have you got there, approximately, now? How many beef animals and cattle will it average throughout the year?

Doctor MELVIN. I could not give you a very close estimate of it.

The CHAIRMAN. Well, about 20?

Doctor MELVIN. Yes; we have more than that. We have probably 40 or 50 yearlings. We are carrying out an experiment with them for the prevention of tuberculosis. And then we probably have 8 or 10 grown cattle; besides a number of donkeys and work animals.

The CHAIRMAN. You practically do not graze at all?

Doctor MELVIN. No; they do not graze at all.

Mr. COCKS. How many acres are there there now?

Doctor MELVIN. About 50 acres there now.

Mr. COCKS. How far is it from the city?

Doctor MELVIN. It is about 6 miles from Georgetown.

Mr. HENRY. Could not this experiment farm better have been located over on the other side of the Potomac?

The CHAIRMAN. Over by Arlington, for instance?

Doctor MELVIN. I think this is an ideal location.

Mr. HENRY. I know it is up on high ground.

Doctor MELVIN. And I think it is better adapted for the purpose.

Mr. HENRY. And it was secured by the Government prior to the experiment farm at Arlington, was it not?

Doctor MELVIN. Yes. As an investment the Government made money. That land is probably worth \$100 to \$200 an acre more than it was when it was purchased.

Mr. SCOTT. Would you think a proposition to sell that farm and transfer the experiment to Arlington would be a good one?

Doctor MELVIN. I would not consider it wise at all, because we have already expended a good deal of money—

The CHAIRMAN. Could they not raise for you the feed in their experiment work over there? Would not the union of the two alongside of each other be very useful to both sides? In a way, you could experiment with some feeding problems, maybe.

Doctor MELVIN. I think the distance would be almost too great—

The CHAIRMAN. I mean to sell Bethesda and move your animals over there, and then could not your experiment work be utilized, your fodder experiments, your plant experiments, and all that?

Doctor MELVIN. No; I don't believe the pathologist of the Bureau would take kindly to a scheme of that sort. There would be too much danger of one object being lost sight of. Of course—

The CHAIRMAN. You would have a separate establishment over there, and you could utilize any surplus fodder that they raised.

Doctor MELVIN. But they would insist on its being fed under certain conditions.

The CHAIRMAN. Which might not be agreeable to you?

Doctor MELVIN. Yes, sir.

Mr. SCOTT. I don't know why that should be. If one branch of the service raises fodder it does not make any difference to it how that fodder is disposed of, does it?

Doctor MELVIN. It would if they were feeding to determine the economic value of the fodder. They would want it fed under certain conditions, certain amounts, and only certain feeds, whereas by using only certain feeds it might interfere with the investigation that the pathologist had in view. I don't think the benefit would be sufficient to warrant the change.

Mr. SCOTT. Cutting out the idea that any joint work might be carried on, I understand that as it is now you are not conducting any experiments in feeding over at the Arlington Farm?

Doctor MELVIN. I don't know.

Mr. SCOTT. They are doing no experiments of that kind at all over there, I understand. Cutting that idea out, I would like to ask you again, what would be the principal objection, from your point of view, to removing these Bethesda experiments to Arlington?

Doctor MELVIN. Well, to be frank, I have never been on the Arlington farm, and I don't know the conditions there; but I do know that Bethesda is almost an ideal location for an experiment station such as we have. The ground is rolling; it is now well fenced, and the streets are well paved. We have had hundreds of cords of broken stone put in the roads and we have utilized the men in breaking stone and making roads, and the place is well divided into lots, and there are good fences, and the buildings, such as we have, are adapted to the purpose, and it would seem to me to be a waste of material to abandon that and rebuild—go to some other station.

Mr. SCOTT. As far as that is concerned, you suggested a little while ago that the land is probably worth a good deal more now than when the Government purchased it, and could be sold for more than enough profit to reconstruct all the sheds and fences, and things of that kind that would be needed.

Doctor MELVIN. Pardon me, I did not go quite as far as that. I said the land had already enhanced very much in value, but whether the additional increase would be sufficient to defray those expenses I don't know.

The CHAIRMAN. If you are getting paved streets, and all that kind of improvements about you, you will have to move out in a few years, probably, on account of the growth of the city, as we had to do at Bennings. And a station of that kind is never very acceptable to residents, if they are close.

Doctor MELVIN. These streets are on our station, streets we have made ourselves.

The CHAIRMAN. Oh, you mean roads?

Doctor MELVIN. Yes.

Mr. SCOTT. They are not essential to the conduct of your experiment, I presume?

Doctor MELVIN. Oh, yes; it is very necessary to have proper roads. We have considerable hauling. We have to haul feed to the various lots where the animals are confined, and unless we have macadamized roads it would be very difficult, in fact almost inaccessible, in wet seasons of the years.

The CHAIRMAN. I think you have the stone right on the ground.

Doctor MELVIN. Yes; we have all the stone right there.

The CHAIRMAN. I remember a little quarry there. It is just a cheap road—a narrow road—that you are constructing at the station?

Doctor MELVIN. Yes; they are all narrow roads.

The CHAIRMAN. A few feet wide—probably not half the width of this room.

Doctor MELVIN. Not much wider than a wagon track.

The CHAIRMAN. Are there any other questions along the line of this quarantine station? If not, we will proceed to the meat-inspection act.

Mr. BROOKS. May I ask a question or two on the next item in the bill—experiments in animal breeding?

The CHAIRMAN. Certainly.

Mr. BROOKS. Mr. Melvin, we have appropriated for several years \$25,000 a year for experiments in animal breeding and feeding. I wish you would tell the committee how that fund is used—how it is distributed.

Doctor MELVIN. During the past year, ending June 30, for animal nutrition there was expended \$3,237; beef production, \$1,592.

Mr. SCOTT. I don't think that answers the question. He was asking about this animal breeding.

Doctor MELVIN. This is all included in that fund.

Mr. BROOKS. The fund of \$25,000?

Doctor MELVIN. Yes, sir.

Mr. BROOKS. What was that last item you read?

Doctor MELVIN. Beef production, \$1,592.

Mr. BROOKS. What is that?

Doctor MELVIN. That is in this animal feeding and breeding fund of \$25,000.

Mr. BROOKS. Where was that carried on?

Doctor MELVIN. That was carried on at the experiment station in Alabama.

Mr. BROOKS. The first was \$3,500?

Doctor MELVIN. Three thousand two hundred and thirty-seven dollars.

Mr. BROOKS. For what—was that for nutrition?

Doctor MELVIN. That was for nutrition.

Mr. BROOKS. Is that for these calorimetric experiments in Pennsylvania?

Doctor MELVIN. Yes, sir.

Mr. LAFEAN. What part of Pennsylvania?

Doctor MELVIN. The experiments connected with the State experiment station.

Mr. BROOKS. Those experiments are very interesting—those calorimetric tests—as I understand them. Can you give us something as to the details of them?

Doctor MELVIN. In salaries out of that amount there were \$3,038.17.

The CHAIRMAN. Out of the \$25,000?

Doctor MELVIN. Out of the \$3,237.07 there were expended \$3,038.17 for salaries.

Mr. BROOKS. That last amount of three thousand and odd dollars comes out of this \$25,000?

Doctor MELVIN. Yes.

Mr. BROOKS. And that is expended at the Pennsylvania State Experiment Station?

Doctor MELVIN. Yes, sir.

Mr. BROOKS. Now, what are you doing there?

Doctor MELVIN. They are studying the value of different foods from a highly scientific standpoint. The investigations are conducted by Professor Armsby, who is considered an expert in that line. They have a calorimeter there that registers all the waste products, and even the air that is consumed and the carbonic-acid gas that is emitted, the feces, the urine, and everything. It has been carried on for a number of years, and it is expected that it will be a very highly scientific piece of work and will be a very useful piece of work when it is completed. Various foods have been taken up at different times. To go into it more deeply than that is almost beyond me at this time; it is something I could not go into detail about.

Mr. BROOKS. That is the main place in the United States where you are conducting that work?

Doctor MELVIN. Yes—

Mr. BROOKS. Is there any other place where that same class of work is being done?

Doctor MELVIN. Not in the same manner. Of course this beef production in the South is somewhat on the same line, but in a very much simpler form.

Mr. BROOKS. That accounts for about \$5,500 of the fund, as I have figured it roughly, which are the Alabama and the Pennsylvania stations.

Doctor MELVIN. No; one is \$3,237.07, and the beef production is \$1,592.69.

Mr. BROOKS. Which is in Alabama?

Doctor MELVIN. Yes.

Mr. BROOKS. How is that spent?

Doctor MELVIN. There is \$1,228.34 in salaries and there were \$364.35 in traveling expenses. The traveling expenses were for the

purpose of visiting different points in the State where herds that were on feed were under observation, to note the increases, etc., in the stock.

The CHAIRMAN. "Under observation." What kind of observation? What was the observation for? What was it to find out?

Doctor MELVIN. To obtain the facts with reference to the kind of pasture and forage used, and the gain, if any, in the animals; to determine what methods of feeding were the most profitable.

The CHAIRMAN. In that section?

Doctor MELVIN. In that section.

Mr. LEVER. Do you do this in cooperation with individual farmers and the experiment stations?

Doctor MELVIN. Our part is direct with the experiment stations, and I believe that they have arrangements with different farmers who supply the stock.

The CHAIRMAN. Who is the man who draws this salary? How much salary out of the \$1,500—\$1,200 and something—is it? Is he an expert cattleman—is he an expert feeder, I mean?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Never mind his name, but has he made a report on the work?

Doctor MELVIN. Oh, yes; they make reports. Professor Dugger is the man who is paid there, and then there are one or two assistants who are also paid.

The CHAIRMAN. Are they in the employ of the State also?

Doctor MELVIN. Yes. I should say that only part of Professor Dugger's salary is paid.

The CHAIRMAN. This salary is in addition to what they receive from the State, then?

Doctor MELVIN. Yes. I don't know whether the State reduces their part in proportion to what we pay or not; I don't know whether ours is additional to what his salary would be ordinarily or not; I can not answer that.

The CHAIRMAN. Your judgment would be that they do not?

Doctor MELVIN. No; I don't know. I would not say about that. I believe that we pay \$1,000 to Professor Carlyle, and I understand that the State reduced his salary that much.

The CHAIRMAN. Have you got that man's report on that feeding?

Doctor MELVIN. No; I have not.

The CHAIRMAN. Who has got it; who has the report he made to the Department?

Doctor MELVIN. I think it is in the office of the animal husbandman of our Bureau. I will inquire for it.

The CHAIRMAN. I would like to see what report he has made on feeding down there.

Mr. FIELD. Are these observations on experiment work going on in the several southern States, or are they confined to the State of Alabama?

Doctor MELVIN. I think they have one herd of cattle in Tennessee that they have under observation; but I think most of the work is in Alabama.

Mr. FIELD. I know in Texas that work is carried on by the State.

Doctor MELVIN. Yes; we have had requests for cooperation from

the State of Texas, but have been unable to take it up on account of having these other plans formed. The hore breeding—

Mr. BROOKS. Where else is this work going on? I would like to have you go on in your own way.

The CHAIRMAN. Take up the Vermont case; the Vermont horse-breeding establishment next.

Doctor MELVIN. Total expenditures in horse breeding, \$12,087.94. Of that, \$2,212.22 was for salaries; \$730.31 for travel, and \$9,145.41 for miscellaneous expenses. That includes, principally, the cost of several horses purchased in the past year.

Mr. BROOKS. Where were those horses purchased—for what station were those horses purchased?

Doctor MELVIN. For Vermont and for Colorado.

Mr. BROOKS. How much for Vermont and how much for Colorado?

Doctor MELVIN. I haven't the cost of the particular horses; there was about \$500 for Colorado and the balance for Vermont.

Mr. HENRY. Have your purchases in Vermont been confined mainly to the Morgan strain?

Doctor MELVIN. Yes.

Mr. BROOKS. These salaries that you paid out of the \$12,000—are those the salaries that you pay here, or are those the salaries you pay in Vermont and Colorado?

Doctor MELVIN. They are all paid outside of the city; they are paid in Vermont and Colorado.

Mr. BROOKS. Now, that accounts for \$16,000 or \$17,000 of this fund.

Doctor MELVIN. Shall I go on?

Mr. BROOKS. Yes; if you will.

Doctor MELVIN. Poultry breeding, \$1,000; \$600 for salaries, \$400 for miscellaneous expenses.

Mr. BROOKS. That is in Maine, is it not?

Doctor MELVIN. Yes, sir.

Mr. BROOKS. Milch goats, breeding, \$4,275.74. Where are you doing that?

Doctor MELVIN. We had outlined to conduct that experiment in Connecticut and Maryland, but a disease was observed among the goats which made it impossible to continue the experiment, and they were removed to our experiment station at Bethesda and they are under observation.

Mr. FIELD. Are they the same goats that were in quarantine at the last meeting?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. What is the disease?

Doctor MELVIN. It is a disease that has been found to be capable of transmission to people through the milk. It produces a disease that has been called Mediterranean fever.

Mr. COCKS. Also known as Malta fever, is it not?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is that disease common in Malta from drinking the milk of this goat?

Doctor MELVIN. Yes, sir. The cause of the disease was unknown up to about two years ago, about the time of the purchase of these goats.

The CHAIRMAN. How does it show itself in the goat?

Doctor MELVIN. The goats oftentimes will live very long without showing any evidence of the disease at all.

The CHAIRMAN. These goats went through our regular quarantine of three months?

Doctor MELVIN. Yes.

The CHAIRMAN. Without showing any symptoms of the disease?

Doctor MELVIN. No; we mistrusted the disease soon after their arrival, through the death of one or two of them, and then investigated and found this disease in their blood and made tests.

The CHAIRMAN. Is it a contagious disease or is it transmitted by the milk only?

Doctor MELVIN. It is transmitted by the milk and through the urine and feces.

Mr. BROOKS. Is it a disease that exists among the goats of this country besides these goats imported—that is to say, among the New Mexico goats; is it found among them?

Doctor MELVIN. It is not known outside of these goats.

Mr. SCOTT. Do you regard the goat of sufficient value as a milk animal to warrant any considerable expenditure in the way of experimenting?

Doctor MELVIN. Yes, sir; I think there is a great deal that might be accomplished in that direction, not alone by importing, but by breeding up our native goats.

Mr. DAVIS. Which part of the country has the greatest number of goats?

Doctor MELVIN. I think the Southwest.

Mr. DAVIS. Texas and New Mexico?

Doctor MELVIN. Yes.

Mr. BROOKS. And there they are quite a milk-producing animal?

Doctor MELVIN. Yes, sir; they use them quite largely for both milk and meat.

Mr. DAVIS. Do they not have them in quite large herds—herds of several hundred, or even several thousand?

Doctor MELVIN. Yes; nearly all Mexicans and Indians have more or less of them among their sheep herds.

The CHAIRMAN. The Italians in my village are milking a lot of goats; they seem to be an ordinary kind of goat.

Doctor MELVIN. A great deal can be done in that line, I have no doubt.

The CHAIRMAN. What is the difference between these milch goats brought from Malta and the ordinary goats around the suburbs of cities?

Mr. COCKS. These were supposed to be the most desirable kind of milch goats known in the world.

Doctor MELVIN. Yes; the greatest milkers known.

The CHAIRMAN. There is no difference in kind, no difference in appearance, is there? They resemble the ordinary goat?

Doctor MELVIN. They are quite different in appearance; even the two breeds which they have largely in Switzerland are different.

The CHAIRMAN. Larger?

Doctor MELVIN. Larger, and they are different in shape and color. However, very few of these goats are constant in color. In the case of these Malta goats the bag is very small at the base, almost pear shaped, with the tip nearly touching the ground. The ordinary goat,

such as we have, has a bag which is quite closely attached to the abdomen.

Mr. COCKS. That would be a disadvantage, would it not, that low pendant?

Doctor MELVIN. It would seem so to me.

The CHAIRMAN. Then so far your experiment has not been a success, owing to this disease?

Doctor MELVIN. That is correct.

Mr. BROOKS. How much milk does this Malta goat give?

Doctor MELVIN. I don't know.

Mr. COCKS. About 2 quarts, I think.

Doctor MELVIN. Some have made the claim that certain goats would give as high as 6 quarts a day, but that would certainly be the exception.

Mr. COCKS. Two quarts in a milking is what they claim for these goats.

The CHAIRMAN. That is the average cow, then?

Mr. COCKS. That was the high level.

Mr. LEVER. Do you think there is a possibility of people taking to the habit of drinking goat milk in preference to cow's milk.

Doctor MELVIN. Yes, sir; I think if we could have gone ahead with this goat experiment it would have become very popular. The announcement that the Department was getting these goats caused a great many inquiries to come to the Department from physicians and invalids and from people who wanted to get the milk for babies.

Mr. LEVER. Is it too strong for babies?

Doctor MELVIN. No, sir; it is very wholesome.

Mr. LEVER. But is it not too rich? I know the milk of the Jersey cow is sometimes too rich for delicate stomachs.

Doctor MELVIN. This is a better balanced milk, it has a larger percentage of sugar and less casein, I think, and is more like the mother's milk than cow's milk.

Mr. BROOKS. Are you discouraged with the result of your experiment or do you propose to keep on with it?

Doctor MELVIN. We intend to see it out—see what we can do.

The CHAIRMAN. In other words, you have to abandon importing goats and you have to breed up here a family of milch goats?

Doctor MELVIN. Yes; except those we get from Switzerland. This disease does not obtain in Switzerland, or at least we do not know that it does.

Mr. BROOKS. And you think it is advisable and an advantageous thing commercially to breed up our American goat?

Doctor MELVIN. Yes, sir.

Mr. BROOKS. That accounts for between \$22,000 and \$23,000 of this fund, as I figure it?

Doctor MELVIN. In turkey breeding we expended \$1,813, of which \$1,061.31 was for salaries and \$351.69 miscellaneous. That was in Rhode Island. The expert was employed more for the purpose of studying the disease that attacked turkeys.

The CHAIRMAN. To whom was that paid?

Doctor MELVIN. Partly the salary of an expert, and one helper.

Zebra-hybrid breeding, \$226.31. For miscellaneous expenses that were connected—



The CHAIRMAN. Before you leave the turkey-breeding item, what results are you seeking to produce, or have you produced any?

Doctor MELVIN. The experiment is not completed yet. The idea of the experiment being to determine, if possible, the manner in which the disease is transmitted from one lot of turkeys to another, whether it is through the eggs, or whether it is carried by birds, or in what way the disease spreads, in order that raisers of turkeys can take proper measures to prevent it. The work has not advanced far enough to give definite results.

The CHAIRMAN. Now, before the United States Government gave that additional \$1,000, or whatever it was, as salary, what was the State of Rhode Island doing along that line? They must have been doing something, because I judge you picked that man out as a turkey expert.

Doctor MELVIN. He was employed there in their work previous to the time of the turkey investigation. I don't know what work he was engaged in previous to this work, and I don't think they did anything in this line until we took it up together. It was a very serious calamity to Rhode Island. Their turkeys were becoming almost exterminated.

The CHAIRMAN. That was a great industry in Rhode Island, and yet the State, it seems, refused to do anything to protect that industry until we took it up.

Doctor MELVIN. I don't know that they refused to do anything. They had not taken it up in quite so close and scientific a way until we cooperated with them. I presume they did make some investigations.

Mr. BROOKS. Are not a number of these items more or less included in the work of the department of animal pathology?

Doctor MELVIN. Well, that would be a case that probably could go into either class of work—belong to either one.

Mr. BROOKS. In other words, is it not just a little—not to be invidious—but a perversion of the purpose of this appropriation?

Doctor MELVIN. No; I think not. In connection with this work several purchases were made of wild turkeys, with the idea of getting a different strain that might be resistant to the disease.

Mr. BROOKS. Yes; that is true.

Mr. HENRY. I might say right here that you have in Rhode Island, in connection with the experiment station, a very valuable man, and he has brought out some facts in connection with turkey breeding and in connection with the diseases that are very valuable.

The CHAIRMAN. The Doctor just said that they had no results as yet.

Doctor MELVIN. Not sufficient to publish.

Mr. HENRY. In a conversation he told me what he had done.

Mr. BROOKS. Then there is only about \$1,500 left of the \$25,000? Where does that go? You spoke of the hybrid zebra. What do you expect to accomplish? What do you cross him with—a horse or a mule or what?

Doctor MELVIN. We have not succeeded yet in getting any cross at all.

The CHAIRMAN. How much did you spend for that?

Doctor MELVIN. \$226.31.

The CHAIRMAN. And what was that expended in—in trying to make a cross?

Doctor MELVIN. In importing the zebras.

The CHAIRMAN. As a matter of fact those zebras were given to the President?

Doctor MELVIN. This zebra, I think, that we have now, was given to the President. There was one given to the President; there were two given to the Department, a male and a female. The female died coming over and the male ran against a wire fence and broke his neck. He was then in charge of the Zoological Park. But this is a male that I think was presented to the President.

The CHAIRMAN. Are you trying to cross the male zebra with the mare?

Doctor MELVIN. Yes; that was the intention.

The CHAIRMAN. What do you hope to gain by that?

Doctor MELVIN. Well, it is an experiment to determine whether we can obtain an animal that would be of more value than the ordinary mule.

Mr. BROOKS. And was not a part of it, Doctor, to try to get some kind of a hybrid which could be domesticated and be pretty near self-sustaining on those arid regions in the southwestern part of the country—

The CHAIRMAN. To exist on cactus and rawhides, cactus internally and rawhides externally?

Mr. SCOTT. Hybrids of this variety are known, are they not?

Doctor MELVIN. Yes; but they are a small species. This is a large zebra; very large. There were some very beautiful small hybrids with a circus that I saw last year.

The CHAIRMAN. Yes; but they were not much bigger than the Mexican donkey.

Doctor MELVIN. Very small, trim little animals.

Mr. SCOTT. And they were the result of a cross with a mare and a male zebra, I suppose?

Doctor MELVIN. Yes, sir.

Mr. SCOTT. Do you know whether the cross has been made in the other direction?

Doctor MELVIN. No; I think not; not to my knowledge.

Mr. BROOKS. Mr. Burleson had some interesting facts in regard to what was called a "zebrula," showing that this animal would be a good beast of burden and would take the place more or less of the Mexican donkey or burro; his facts seem to indicate that the zebrula would be a stronger animal and at the same time could get a living out of that arid region.

The CHAIRMAN. Mr. Gibson gives me this, taken from a book which I have at home, called "Military Service." This is stated from an article that appeared in it about two years ago.

France and England produced the zebrula, and it is expected to prove valuable in India in the British Army for mountain artillery.

I suppose our mule would be just as good and probably better. I believe the American mule in the war in South Africa had no equal.

Mr. BROOKS. Does that make up the \$25,000?

Doctor MELVIN. No, sir; there is another item of \$735.05 for miscellaneous investigation. That included \$201.33 for salary, \$70.15 for miscellaneous, and \$40.57 for traveling.

The CHAIRMAN. Tell us how that was expended; what work did the man accomplish?

Doctor MELVIN. It included quite a large number of trips. They were included in that item for traveling. He visited various stations where we had this work under way and investigating different live-stock shows, reporting on the quality of stock at the shows.

The CHAIRMAN. Were Mr. Carlyle's expenses paid to a live-stock show in Chicago, for instance?

Doctor MELVIN. No; not out of this.

Mr. BROOKS. It develops, then, that the major item here is the breeding of horses. That is carried on at only two places thus far?

Doctor MELVIN. Yes, sir.

Mr. BROOKS. In Vermont and in Colorado?

Doctor MELVIN. Yes.

Mr. BROOKS. The Vermont station is only just starting; they have a part of their stud together?

Doctor MELVIN. Yes, sir.

Mr. BROOKS. Mr. Scott has suggested that you tell us what you have done at the Colorado station, if you know.

Doctor MELVIN. Well, as you know, they have purchased a stallion and a number of mares, and as the result of the breeding they have this year fourteen colts.

Mr. BROOKS. The great question that has come up in the committee hitherto has been as to whether or not this horse was prepotent, as to what the colts were with reference to perpetuating his strain. Do you know anything about those fourteen colts that are the result of Carmon's work?

Doctor MELVIN. Yes; I saw them in November last, and they are very fine, high class colts, and all of them are strongly marked after the sire in every instance.

Mr. BROOKS. It is a rather remarkable prepotency, is it not?

Doctor MELVIN. Very much above the average; yes, sir.

Mr. BROOKS. How many mares have they there?

Doctor MELVIN. Nineteen, I believe.

Mr. BROOKS. And how many have they bought this year?

Doctor MELVIN. Two.

Mr. BROOKS. In your judgment, what is the chief need of that experiment? Take it during the term that this appropriation will be available—that is, from July 1, 1907, to July 1, 1908.

Doctor MELVIN. The experts that are engaged in this work, Professor Carlyle and Mr. Rommel, the animal husbandman of the Bureau, think, and my own opinion is, that there is not a large enough number of mares to make selections from in continuing the experiment. It is also evident that we should either own or have the services of another sire to mate with some of the mares which we now have. Of course that would be absolutely necessary—

The CHAIRMAN. You mean the second generation of mares?

Doctor MELVIN. No; with some of these older mares. By the selection of another sire having some other points different from "Carmon," the character of the colts could be improved. For instance, there are some mares that would undoubtedly bear a better colt by another sire.

The CHAIRMAN. Right there; do you think you concentrate your blood enough by having too many mares and different kinds of

mares? Don't you believe you had better start on a small scale and get your blood concentrated by some little inbreeding, so you can get sires and mares that will be prepotent? If your base is big and scattering, and you are bringing in all sorts of blood, you are going to have the difficulty that the French and German coach people are suffering from. Their stallions and mares are not prepotent because they are a mixture of everything and all things, and you know that those stallions in this country have proved utter failures as getters, as a rule. What have you to say to that proposition?

Doctor MELVIN. Well, the idea, of course, was to fix a definite type of an animal, and then, after that type had been established, to breed exclusively from that type.

The CHAIRMAN. You can establish a type, but you have to get an animal that is prepotent in its type to reproduce itself, and can you do that without a strong concentration of blood on the base?

Doctor MELVIN. The stallion we have has shown himself, by his colts, to be very prepotent, but nearly all horses have some little weakness, and where the mare may have some similar weakness it is apt to be increased in the offspring; and by the use of another horse, which could counteract that weakness of the mare, we would get the better offspring.

The CHAIRMAN. You never ought to have bought mares with that weakness; they were not all of the type you wanted; there were seven or eight mares that were exactly the type, and a first-rate carriage type, and the stallion is a splendid type.

Mr. BROOKS. Here is a letter from Mr. Carlyle, which I would like to read, in part:

Mr. Brooks read as follows:

\* \* \* At present we have 14 very fine colts, and there have been added this year two mares to the experiment. We are greatly in need of an additional stallion that will mate well with some of the mares—better than will "Carmon." He is an excellent mate for some of the mares, but naturally he has some weaknesses, and some of the mares have defects in the same line that he has. Consequently the colts tend to have these in an exaggerated degree. No breeder of live stock of any consequence in America has ever accomplished much with a single sire. He mates the different individuals in his herd or stud with the female selected to correct weaknesses in the male. When you have to depend upon one sire alone with all classes of mares, there is only a small proportion of success. We have two or three mares, perhaps four, in the stud that are not going to prove satisfactory and should be discarded unless they prove better this season than they have in the past. Of the 14 colts we have with the fillies and the stallions, I think two of the latter will prove good individuals to preserve entire for breeding purposes and perhaps five or six of the fillies will be worth keeping. The others should be discarded as high-class driving horses. We are planning to purchase some additional land for corrals and paddocks, and also planning to put some shelter in the way of additional sheds and stabling for the young stock. We will need more fencing on the pasture land so that we can divide the young stock from the brood mares and their foals. This will require funds, and I sincerely hope that both Congress and the State legislature may see the thing in the proper light to make reasonable appropriations for the carrying on of the work.

Again thanking you, etc.

And that is signed by Mr. W. L. Carlyle.

Mr. BROOKS (continuing). I understand that you, in general, concur in the idea that there ought to be one more stallion?

Doctor MELVIN. Yes.

Mr. BROOKS. I want the committee to understand also that any purchases made for either Colorado or Vermont must be provided

for here, to take care of the breeding season of 1908, because the fund for next year's breeding will not be available after July 1 of next year. Any purchase of a stallion for the season of 1908 must come out of whatever we do at this time.

Mr. COCKS. Is it not proper to keep the desirable ones and discard the undesirable mares—get rid of these mares that have weaknesses—is not that better than to undertake to balance that, if we are after some particular type? That would be my idea.

The CHAIRMAN. I think it is foolish to take a defective mare and try to breed her colts up to perfection.

Mr. BROOKS. These mares were purchased pretty cheap.

Doctor MELVIN. A lot of these mares that are complained of at this time are really exceptionally good mares. They have but a slight weakness. For instance, the back is a little lower than it should be. Otherwise they are handsome mares, well bred, and well gaited.

The CHAIRMAN. But they are not the type. We started this experiment, as I understand it, to establish a breed of American carriage horses. Some of those mares are no more carriage mares than a thoroughbred Kentucky is a carriage mare.

Doctor MELVIN. Two or three of those have handsome colts.

The CHAIRMAN. But are they the right type?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And if they are it only shows the prepotency of the stallion.

Mr. BROOKS. You remember that there was one horse there that you objected to—a horse that had a Roman nose?

The CHAIRMAN. Yes.

Mr. BROOKS. And that brought one of the finest colts in the bunch.

The CHAIRMAN. The veal stage is a pretty stage, the veal colt or the veal calf may be very handsome, but later it may follow the sire or the dam.

Mr. BROOKS. There are two that Mr. Carlyle objects to.

The CHAIRMAN. I want this experiment to succeed, and I don't want us to make the mistake I think the French and German Governments have made. This is a slow process and we ought to go very slowly on it. They tried to go too fast. It is the work of fifty years.

Mr. BROOKS. We do things quickly out there. We are going to try to accelerate things.

Mr. COCKS. Take the mare he speaks of having this nice colt. We are not raising that colt to sell, but to establish a dam or a sire that will produce his like. Now, that Roman nose, that homely mare, will surely come out again the second or third generation.

Mr. BROOKS. That had one of the finest pedigrees in the whole bunch; that mare was bred away back to the aristocracy of the horse.

Mr. COCKS. The business of breeding has been cut out. The idea used to be that you could sell a Jersey cow on account of its pedigree and it is now what it will do to-day. The breeding for a Morgan coach horse does not cut much figure. The great success of the Mambrino King stock farm, one of the most successful horse-breeding farms, perhaps the most successful in the United States, was owing to the fact that they picked out a type and they said one of

the essentials shall be that he shall be a good-looking horse, and I think you have to keep that in mind all the time in this case.

Mr. BROOKS. Have you the figures as to what the Government gave the Colorado Experiment Station last year? If you have not that, I think I can give you that; I have it here. According to Doctor Carlyle, the National Government gave us last year for the support of the experiment station outside of the purchasing of horses—that is, the year 1905—\$3,500.

This year they have increased that amount to \$3,700, and this is the amount which they contributed from the \$25,000 appropriated. That is to say for maintenance there went to the Colorado Experiment Station the first year \$3,500, the second year \$3,700, and this year they have only purchased two more mares at an expense of \$500. So the total amount that the Colorado Station has gotten all told for the year 1906 is \$4,200. Now, Doctor Melvin, do you know anything about what the other States have done in the way of cooperation? That is to say, Pennsylvania, Alabama, Tennessee, Vermont, or Connecticut?

Doctor MELVIN. Well, they have cooperated in the way of equipment services, and buildings, and so on.

Mr. BROOKS. I would like to put into the record the figures furnished me from the Colorado station. The State of Colorado contributed during the year 1906, \$16,970, as against \$4,200 by the United States.

The CHAIRMAN. You say they contributed \$16,000?

Mr. BROOKS. Yes.

The CHAIRMAN. What is the detail of that? What are the items of that \$16,000?

Mr. BROOKS. They purchased a pasture for this particular work, \$4,500. They had to refence a good deal of it at an expense of \$1,660. (Posts cost \$130.) They purchased a stable and sheds, \$5,450. Office furniture, \$100. Fencing, paddocks, stalls, and so forth, \$1,200. Eight acres of land devoted to the paddocks and stalls, \$2,000. That is pretty high-priced land.

The CHAIRMAN. That is part of their experiment farm or only stables there?

Mr. BROOKS. Yes; but this 8 acres is not what they use for the other purpose. They purchased, I think, 60 acres of land at \$250 an acre, but that was that highly irrigated, cultivated land upon which the sugar beet is raised. Tools, harness, \$350; grading of land about the stables and paddocks, \$500; extra feed and bedding, \$1,100; services of one extra man, \$860; shoeing horses, medicine, etc., \$120; total, \$16,970. Now some small portion of that may be chargeable to other things, but not much.

Mr. HAUGEN. They bought a farm; that was a real estate investment.

Doctor MELVIN. You have not included in the Government estimate the cost of the animals.

Mr. BROOKS. I excluded that; yes.

Mr. LEVER. Will the experiment station make that same expenditure next year?

Mr. BROOKS. No; but a great deal larger one, if what I believe they can do can be done.

Do you think it would be advisable, Doctor Melvin, to condition any increased appropriation upon the State's cooperation. That is to say, is it not fair for this committee to say to the different States that we propose to put a breeding establishment in the State or to do work like the work that has been described in these other places, for instance, in Rhode Island and Vermont and Alabama; would it be fair for us to say to the State, we will do this in your State if you will agree to spend the same amount of money or more?

Doctor MELVIN. I think in all cases the State should equal the expenditures of the National Government.

Mr. COCKS. So do I.

The CHAIRMAN. However, they do not do it in all these cases. In the case of Colorado, of course Colorado has exceeded the amount spent by the National Government.

Doctor MELVIN. They may not have done it in actual cash, but they have in the way of facilities for conducting the experiments, buildings, equipment, and services of employees.

Mr. DAVIS. Do you think it would be a good idea for this committee to make a conditional appropriation of so many hundred or so many thousand dollars to each State in the Union—because they all differ somewhat in climate and other conditions—make the appropriation conditional upon the State meeting that amount for the purpose of the propagation and breeding of horses?

Doctor MELVIN. That seems to me the only fair way of putting it. It is only fair to all of the States to let them have an opportunity of cooperating in this work, if they desire to do so.

Mr. DAVIS. I asked that question in consequence of all the discussion that has been going on as to various objections from other sections to the species of horse propagated in Colorado; the horse bred there may not be the kind of horse they want in some other States, in the East or South, perhaps. Therefore, if you wanted a perfect horse for the conditions in any State, it might be found that you would have to have a horse bred there in that particular State. And so I say, would it not be well for this committee to inform the United States generally that upon their meeting certain conditions we will recommend appropriations for this purpose and let them go as much further as they see fit?

Doctor MELVIN. Do I understand you to confine that to the breeding of horses, or would you include other animals?

Mr. DAVIS. We might start in with the horse and extend it to other animals; yes. In Minnesota at the present time, of course, we have the finest stallions in the world. Dan Patch and one or two others are right in my district. They are considered very fine. Perhaps, however, the stock bred there would not do well in Tennessee or Colorado or some other State.

The CHAIRMAN. I was going to ask you about this little item of \$5,000:

That the Secretary of Agriculture is authorized to expend \$5,000 of the amount hereby appropriated to especially investigate hemorrhagic septicemia, infectious cerebro-spinal meningitis, and malignant catarrh prevalent among domestic animals in the State of Minnesota and adjoining States, to work out, if possible, in cooperation with the Minnesota Experiment Station, the problem of prevention by developing antitoxin or preventive vaccines, and to secure and domestic animals in the State of Minnesota and adjoining States, to work out,

Is that disease especially prevalent there and not anywhere else?

Doctor MELVIN. It is more prevalent there than in other sections of the country.

The CHAIRMAN. What class of farm animal is it prevalent among?

Doctor MELVIN. Horses and cattle especially, so far as hemorrhagic septicemia is concerned. The malignant catarrh is more confined to cattle. We have a pathologist located at the experiment station in Minnesota, who is working on the disease in connection with the veterinarian of the State. The State furnished room and laboratory facilities, and they are now conducting their investigations.

The CHAIRMAN. Have you the detail of the expenditure of that \$5,000?

Doctor MELVIN. No. For the present fiscal year I have not got that—

The CHAIRMAN. What is hemorrhagic septicemia? I think I know what septicemia is, but what is hemorrhagic septicemia?

Doctor MELVIN. It is, briefly, a blood poisoning that manifests itself by tumors or swellings forming in different parts of the body. The investigation was to determine more carefully and fully the nature of the disease, to learn more about it.

The CHAIRMAN. Have you not had this disease elsewhere?

Doctor MELVIN. None as prevalent as in that section.

The CHAIRMAN. Is it prevalent in some one section of Minnesota, or is it all over the State?

Doctor MELVIN. I don't know just what sections of the State it is confined to. I think it exists somewhat in the Dakotas and other States.

Mr. DAVIS. Northern Minnesota and the Dakotas, chiefly.

The CHAIRMAN. I want to know whether it is a local trouble.

Doctor MELVIN. No, it is too extended to be called a local trouble.

The CHAIRMAN. I never heard of it until you brought the attention of the committee to it last year, Mr. Davis, and I supposed the treatment of it and the examination of it, and so forth, came under your general powers; I thought you had the general power to cover such cases as that without a special appropriation and provision for it.

Mr. DAVIS. It extends into Iowa, Wisconsin, Minnesota, and the Dakotas, four States, quite generally.

The CHAIRMAN. Is it in the dairy section?

Doctor MELVIN. Yes; it is all over that country there.

This item of \$5,000 was not in addition to the regular appropriation, but simply setting aside \$5,000 of the regular appropriation for that purpose.

The CHAIRMAN. I understand that; but we have rather avoided such special provisions or appropriations as that.

Mr. DAVIS. One general term for that is swamp fever.

Mr. LEVER. I would like to ask the Doctor what results he has gotten from the dairy experiments in the South?

The CHAIRMAN. That is treated of somewhat by the Secretary in his report. I imagine they have just about made a beginning. Have you any data on that subject with you, Doctor Melvin?

Doctor MELVIN. Yes, sir; I have more than I ought to have, I guess, in order to find it readily.



[Referring to memorandum.]

The southern dairy investigations are in charge of Mr. B. H. Rawl, assisted by six men. In this work \$9,526 has been expended the first half of the year. The work done in the different States is as follows:

*North Carolina.*—Time of Mr. J. A. Conover. Silos built or under way, 8; barns built or under way, 7; dairy farm management cooperations, 18; approximate cost, \$929.

*South Carolina.*—Half of time of Mr. J. E. Dorman after July 16. Silos built or under way, 16; barns built or under way, 9; dairy houses built or under way, 5; dairy farm management cooperations, 13; approximate cost \$639.

*Georgia.*—Half of time of J. E. Dorman, after July 16. Silos built or under way, 17; barns built or under way, 6; dairy houses built or under way, 7; dairy farm management cooperations, 19; approximate cost, \$608.

*Tennessee.*—Time of Mr. S. E. Barnes. Silos built or under way, 11; dairy farm management, 9; approximate cost, \$1,190.

*Mississippi.*—Time of Mr. J. W. Ridgway after July 16. Silo built, 1; dairy farm management cooperations, 15; approximate cost, \$1,096.

*Texas.*—Time of Mr. H. N. Slater after August 1. Silos built or under way, 4; creamery buildings finished or under way, 2; creamery management cooperations, 3; dairy farm management cooperations, 4; approximate cost, \$1,846.

Mr. Duncan Stuart, whose duty is to keep the records of the southern work, made a three months' trip in the South last fall, visiting 28 cities, to obtain information as to the source of supplies in that section of butter, cream, cheese, condensed milk, and in some cases of milk. We hope to have this report printed in the near future, as it contains very valuable information concerning the southern dairy markets and will be useful to the workers of this division in the South, as well as to the individual dairyman. Mr. Stuart's salary and expenses for the period herein reported amount to \$1,209.

In the general management of the southern work Mr. Rawl's salary and expenses amounted to \$1,921. Expenses of the chief on one southern trip amounted to \$80.

Mr. HAUGEN. How are these experts selected? Do they have any special qualifications?

Doctor MELVIN. Yes, sir; most of these came into the Department under temporary appointments as experts and afterwards qualified through the civil-service examination, and have entered the Department in that way, through competitive examination.

Mr. LEVER. Doctor, do you think the work has progressed far enough to warrant its continuance?

Doctor MELVIN. Oh, decidedly; I think it would necessarily have to continue for several years in order to have permanent value.

Mr. LEVER. What amount do you contemplate using for this purpose in your next fiscal year?

Doctor MELVIN. I don't think any increase has been asked for in this work.

Mr. LEVER. Mr. Chairman, as a matter of information to the committee I would say this: That just before the holiday adjournment I wrote a letter to all the experiment station men in the Southern States affected by this proposition, asking them to write me frankly any criticism of the work, or any suggestion, and I received replies from nearly all of them. I happen to have one letter in my pocket which I received in my mail this morning. I can say that nearly all of these replies are most favorable to the work and most favorable to the young men in charge of the work, and they all speak very highly of it and that there is great possibility in it. Here is one letter, which is rather typical of the letters that I have received, and with your permission I would like to read it so that it may go into the record.

This is from the experiment station in North Carolina, in charge of Mr. Kendall.

The CHAIRMAN. Very well; that may go into the record.

Mr. Lever read the following letter:

THE NORTH CAROLINA  
COLLEGE OF AGRICULTURE AND MECHANIC ARTS,  
West Raleigh, N. C., January 7, 1907.

HON. ASBURY F. LEVER,

*Committee on Agriculture, House of Representatives,  
Washington, D. C.*

DEAR SIR: After an absence of three weeks I find your letter of December 20 in regard to the work which is being done by the U. S. Department of Agriculture for developing the dairy interests of the South.

I know of few bills affecting a like number of people, of similar interests, which have the possibility of doing more good where it is needed than the one to which you refer.

From a business standpoint I believe the opportunities for dairying in the South are as good as in any section of the United States. Nearly all of the large dairy markets are supplied by distant States. All dairy products command high prices. The long growing season, the mild climate, and the large yield of the best forage crops tend to make cheap production possible, and besides our lands demand just such farming as will be necessary to supply this home market.

This section is in need of such assistance as that for which this bill provides. Dairy methods are crude throughout the South. Very little improved dairy apparatus has been used. It is a common practice to churn whole milk. Few silos are used. The stock is inferior but capable of rapid improvement under proper management.

The advantage of this work it seems to me, is that it helps those that need assistance and at the same time benefits the community. The work which has been done in North Carolina seems to have met with favor, and instead of one man spending only part of his time in this State, as first planned, he will not be able to fill his engagements by devoting his entire time to this work.

There is another good feature about this work. At present we have very little reliable information relating to southern dairying. We have not the skimming stations, creameries, and cheese factories to go to for records, which makes the collecting of such data very difficult.

As to the future possibilities of this work in this section I would suggest that the present plans be worked out and extended to meet the requirements. When this has been accomplished, demonstration dairy farms should be established where conditions warrant. Such a farm would furnish information in regard to the cost of erecting and equipping the proper buildings for that locality, improvement of land under good management, of rotation and use of live stock, the improvement of native herds by selecting and breeding, and could be used as headquarters and a source of reliable data for all farm operations for that section.

I am heartily in sympathy with this work and hope to see it continue.

Respectfully, yours,

J. C. KENDALL.

The CHAIRMAN. AS I understand it, the Department proposes to continue the work?

Doctor MELVIN. Yes, sir.

Mr. SCOTT. I should like to inquire whether any results have been obtained that the Department thinks important in the matter of developing an antitoxin for hog cholera?

Doctor MELVIN. We have in the Bureau a division for perfecting a method of serum inoculation for the prevention of hog cholera. The patent was taken out by the inventor, Doctor Dorset, in the name of the Department for the use of the people of the country to protect the method for the people. We have not yet put this into practical operation. We have not expected to do so until we could make

further demonstration, but it bids fair to be a very effective means of preventing hog cholera. It is simply the inoculation, the injection of the serum of an immune hog into susceptible hogs. We propose to do this when the pigs are small and only in localities where there is a probability of the disease developing. We will do it when the pigs are from 4 to 6 weeks old.

It can be done then more economically on account of the smaller dose required at that age of the pig. I hope during the coming year—we have a number of these hogs at Ames, Iowa, where we have rented a small pasture—to distribute some of these hogs—either the hogs themselves or the serum after being prepared—to the experiment stations and have them make demonstration as to its efficiency.

The CHAIRMAN. You spoke of experimenting with tuberculosis serum at your Bethesda station. What results have you obtained there?

Doctor MELVIN. That has not progressed far enough to determine what the result will be. That experiment will probably have to extend over two or three years before we come to any positive results.

The CHAIRMAN. I am going to make a suggestion, although it is perhaps unnecessary. Our dairy people up North are beginning to find that alfalfa is a cheaper and better milk producer than ensilage, and wherever alfalfa can be grown in the South it is a question worth looking into before the building of silos. I have found it a great deal cheaper than the building of silos. In 1906—I have just closed my books—I had on a little farm 13 cows, and in addition to the skim milk that I kept myself and all the milk and cream and butter that I could use on the farm—a big farm of 2,000 acres—those cows yielded me an excess of what I mentioned, without one particle of grain, \$54.66 a head. That was on alfalfa. I feed them alfalfa in the winter and a good, ordinary, blue-grass pasture in the summer. If you can make a cow produce that without grain, you have pretty nearly the cheapest kind of milk.

Doctor MELVIN. Speaking of alfalfa, at our experiment station at Bethesda we have a field of alfalfa, but we use that principally for green feed. We cut that three times a year.

The CHAIRMAN. I was speaking to Mr. Lever on this point last year, suggesting that it will be well to go pretty slow about advising farmers to invest in silos, because alfalfa is so much cheaper where it can be grown, and you can soil with it.

Mr. LEVER. I will say now that the Bureau of Plant Industry is now conducting a number of experiments with the view of determining whether we can grow alfalfa in the South.

Mr. COCKS. Don't you think there are as many silos abandoned in New York each year as are built? They can not use them in the condensed-milk business at all.

The CHAIRMAN. That is true.

Mr. COCKS. The Borden people I know compensated a great many men for the construction of silos.

Mr. HENRY. It was thought some years ago they could not use them in making butter of the best grade, and now the very best butter is produced on silos.

Mr. HAUGEN. Does the alfalfa do well in New York?

The CHAIRMAN. Oh, yes; it does splendidly.

Mr. BROOKS. Can you not produce it in New England?

Mr. HENRY. Only to a very limited extent. The hardpan, or the rock, is too near the surface.

Mr. BROOKS. It needs a pretty deep soil.

Mr. HENRY. Yes. I think I built the first silos east of the Connecticut River, and it was several years before the farmers took hold of them, but now you can find hundreds of them there, and I don't know any that have been abandoned.

Mr. COCKS. I think in the Harlem Valley, or in the dairy section tributary to the Delaware, Lackawanna and Western, they raise alfalfa very well.

The CHAIRMAN. The best piece I have got is on the best wheat land I have.

Thereupon (at 12.30 p. m.) the committee took a recess until 2 o'clock p. m.

#### AFTER RECESS.

The committee reconvened at 2 o'clock p. m., Hon. James W. Wadsworth (chairman) in the chair.

#### STATEMENT OF DR. ALONZO D. MELVIN—Continued.

The CHAIRMAN. In the consideration of the estimates of appropriations we have reached the meat-inspection item, and I think the committee would be very much interested to know something about the workings of the act, and to hear any suggestions that you may have to make in regard to amendments, Doctor, and if you will just take up any one establishment and tell us how you have manned it, and the cost of manning it, we would be glad to hear you. Have you those data? Take up a small one or a big one and just tell us what it costs to man any one packing house in Kansas City or Chicago. Have you that information here?

Doctor MELVIN. No; I have not.

The CHAIRMAN. Take up first the estimates themselves. Are there any amendments that you want that experience has shown to be wise and necessary?

Doctor MELVIN. There have been several small features of the act that were rather embarrassing in relation to its complete enforcement, and there is one suggestion that I might make for modifying it, in reference to the shipment of dressed calves and lambs to market centers. This is an extremely large industry, particularly through New England and for quite a radius around Chicago, extending into Michigan, Wisconsin, Minnesota, and Illinois, although Illinois would not be affected, as that would be entirely within the State; also Indiana and Iowa.

Mr. SCOTT. Pardon me. You are referring now to the practice of small butchers near the great cities slaughtering these animals and shipping them in?

Doctor MELVIN. Yes.

The CHAIRMAN. Calves and lambs particularly?

Doctor MELVIN. Small butchers and also agents and produce dealers in outlying smaller towns buying them from the farmers and shipping them.

The CHAIRMAN. What they call hog dressed?

Doctor MELVIN. Yes; hog-dressed calves and lambs. It is very exceptional that any disease is found among these animals between the ages of 3 weeks and 6 months, and it is a great cruelty to compel them to be shipped alive, as at that age they subsist almost entirely on the mother's milk, and if you take them away from that it is simply a starvation question until they are slaughtered; and if those animals could be exempt from inspection it would facilitate matters a great deal.

The CHAIRMAN. Without any danger to the public?

Doctor MELVIN. Without any danger to the public.

Mr. SCOTT. Have you framed your suggestion into a sentence or a paragraph?

Doctor MELVIN. No, sir; it is not in the estimate. That bill was drawn in August and the meat-inspection bill practically did not become effective until October 1, although it did actually go into effect the 1st of July. These points were brought out since the operation of the bill and since it was put in force.

Mr. SCOTT. Do you think that the inspection in the matter you referred to could be eliminated without endangering the whole inspection system? Would not the privilege of taking uninspected calves to the market, for example, be liable to abuse that would be hard to correct?

Doctor MELVIN. I hardly think so, because the bill already includes a clause or provision which makes anyone liable who sells for human consumption any diseased animal, irrespective of whether it is inspected or not.

The CHAIRMAN. Inspected or not?

Doctor MELVIN. Yes. And I think that would cover anyone who would sell diseased animals under any conditions—any circumstances.

Mr. SCOTT. Of course the trouble with that is that without an inspection one might sell diseased meat for years without being detected.

Doctor MELVIN. I did not get the last part of your remark.

Mr. SCOTT. I say a dealer might sell diseased meat for years without inspection and might never be detected. He might not know himself that it was diseased.

The CHAIRMAN. Suppose, if you are convinced in your own mind that such a provision ought to be included in the bill, that you draw it, and we will take that matter up in the full committee and give it consideration.

Doctor MELVIN. There is another feature of the bill that we found not altogether to our liking, and that is the unqualified marking of all passed meats "Inspected and passed." It subjects the inspection to considerable criticism in this way: There are only two methods provided for marking them. They are either to be marked "Inspected and passed" or they are to be marked "Condemned," and without any reference to the quality of the product. A first-class meat product would be marked "Inspected and passed," the same as an inferior meat product would be marked "Inspected and passed," and while the latter might be wholesome and fit for food it is of a very poor quality. It would be something that should not be condemned, and yet it stands with as high approval as the best quality of meat.

The CHAIRMAN. If you went the next step with that, the Government would be grading meats.

Doctor MELVIN. Would it not possibly be well to do that, to some extent, at least, rather than have them all——

The CHAIRMAN. I think if you pass on the wholesomeness of it you had better let the consumer pass upon the quality of it. You might apply that to potatoes or cheese or anything else with equal force, I should think.

Mr. SCOTT. When you use the word "inferior" do you refer to meat that is from animals which are poor and old?

Doctor MELVIN. Yes; that and also in cured meats; some meats that after having been cured are not in as prime condition as some others. They may be nutritious and fit for food, and to condemn them would take them from a class of poor people who can not buy any other kind of meats.

Mr. SCOTT. Does this suggestion come from the packers or from the consumers?

Doctor MELVIN. No, sir; from myself. That has been my observation.

Mr. SCOTT. The packers have not complained about it?

Doctor MELVIN. Not at all; no, sir.

Mr. FIELD. Would not that be a departure from the real object of the bill, to ascertain whether it was diseased or not?

The CHAIRMAN. I think the real object of the bill is to assure the public that what they are eating is wholesome.

Mr. FIELD. Yes.

Mr. SCOTT. That is all.

The CHAIRMAN. And whether it is fit for food.

Mr. FIELD. And it is not to say whether one kind of meat is better than another.

The CHAIRMAN. Leave that to the consumer. He will not repeat it. If he has bought a poor piece of meat and wants a better piece, he will get it the next time.

Doctor MELVIN. The consumer must be the judge in the end, after all, because this meat, after it is inspected and passed, may deteriorate and become decomposed, and the consumer has to be the inspector in such cases.

Mr. HAUGEN. Do these butchers encounter any difficulty in having carcasses shipped? The butchers and farmers are exempt, are they not?

Doctor MELVIN. The retail butchers are exempt, and the farmers when slaughtering their stock upon the farm.

Mr. HAUGEN. When these carcasses are offered for shipment are they accepted by the railroad company?

Doctor MELVIN. The Department has provided for a certificate which may be given by the farmer to the transportation company in order that they may receive the dressed animals for transportation. This certificate I have here, and perhaps I had better read a part of it.

Mr. HAUGEN. Have there been any complaints?

Mr. LAMB. This certificate covers it. I have had right much experience on that line.

Doctor MELVIN. The farmers were provided for under regulation 56, covering meat inspection. [Reading:]

*Regulation 56. Farmers.*—When any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats is offered to any common carrier for transportation from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia by a farmer, the common carrier shall require the following certificate from the said farmer, which certificate shall be filled out in duplicate:

(Date) \_\_\_\_\_, 190 .  
 Name of railroad to which offered: \_\_\_\_\_  
 Shipper: \_\_\_\_\_  
 Consignee: \_\_\_\_\_  
 Point of shipment: \_\_\_\_\_  
 Point of destination: \_\_\_\_\_  
 Car number and initial: \_\_\_\_\_

Then he certifies:

I hereby certify that I am a farmer, and that the following-described uninspected carcasses or parts thereof have been slaughtered by me upon my farm and are offered for shipment in interstate commerce as exempted from inspection according to act of Congress of June 30, 1906. The said meat or meat food products are sound, healthful, wholesome, and fit for human food.

That is signed by himself, with his address.

Mr. HAUGEN. Are all the agents supplied with blanks now, so that the farmer can go to the station and fill out his blank?

Doctor MELVIN. I think they are, wherever they ship much of such products.

A somewhat similar certificate is provided for under regulation 55 for the retail butchers and retail dealers. It has been a rather hard matter to ascertain what were retail butchers and dealers, or rather, who were retail butchers and dealers and who were not, but in a general way we have taken the ground that one who sells meat or food products to the dealer to be resold is a wholesaler, and that those who sell to consumers only are retailers.

There have been a number of instances where people were doing a wholesale business in a very small way, and where it would be impracticable, utterly impracticable, to supply inspection. In many cases, particularly near State lines, small butchers have been killing three or four cattle and perhaps the same number of sheep and swine a week. To supply a man at \$100 a month to inspect those few animals would seem absurd.

The CHAIRMAN. That question came up last year in considering the bill.

Doctor MELVIN. Yes; and yet many of these men do a wholesale business.

The CHAIRMAN. They sell to the village butcher by the quarter?

Doctor MELVIN. Yes; and often they supply each other. We had a case in Arizona where a butcher occasionally shipped a quarter of beef or a piece of mutton over to another butcher in California, and that butcher occasionally shipped to him. They exchanged back and forth.

The CHAIRMAN. What did you do in that individual case?

Doctor MELVIN. We arbitrarily gave him exemption. We provide for a certificate of exemption. This certificate is numbered, and they could use this number of their exemption certificate in filling out their certificate to the railroad company. We provided for

these certificates in order that the railroad company might be relieved of the responsibility of examining all packages that were offered them for shipment as to whether they could be transported under the law or not. Otherwise it would have been necessary for them to unload and examine every package and carload of product that was offered to them. And we make the shipper assume the liability as to whether those products can be shipped under the law. I found that in the law there was no provision made for consumers themselves.

The CHAIRMAN. That is killing for themselves?

Doctor MELVIN. Yes; for instance, here in the District many of these persons who were employed in the District live outside of the District, and they come in with their market basket and buy the provisions, and take them home with them in the evening; or they have them sent out to them during the day, and there is no provision for that whatever.

The CHAIRMAN. Would not that come under the head of the retailer selling to the consumer?

Doctor MELVIN. It would seem so; the retailer would have to provide this. But the man appears at the railroad station with his market basket without a certificate. Where we have been asked for an opinion regarding such cases, we have said that we did not intend to enforce the law to such extremes; but it is not specified in the law that they are exempt. There are several cases where persons have raised a hog or two and shipped a ham or two to some of their friends in another State, and they are not retail butchers, and they are not retail dealers.

The CHAIRMAN. No; for instance, if a friend of yours wanted to ship you some sausages from Arizona, there is no provision in the law covering it, and under the strict interpretation the railroad could not carry it; I mean a friend—a farmer or anybody else.

All those things you think you had better leave for the present for another year's experience?

Doctor MELVIN. Well, I desire to leave that for the consideration of the Committee. I merely present these things for your information.

The CHAIRMAN. I say it with all respect, but I do not think that the committee is competent to pass upon it. You know the working of the law so much better than we can possibly know it that it is your opinion that we would like to have.

Doctor MELVIN. The general action of the bill has been found to be very effective, and there is no doubt that it has resulted in a great deal of good, and I would not like to endanger it by suggesting changes.

The CHAIRMAN. That was my own opinion, that we ought to go very carefully this year, so as to get another year's experience.

Mr. SCOTT. Have you found a disposition in any quarter to evade the operation of the law upon the part of those to whom it applied?

Doctor MELVIN. In a few instances, but not generally. It has been very hard for many to comply with the sanitary requirements of the Department's rules. In a few instances people voluntarily went out of business rather than expend the money necessary to put their establishments in a proper sanitary condition.

Mr. SCOTT. Those, of course, were small dealers?



Doctor MELVIN. Yes; some of those were small affairs.

Mr. BROOKS. Were they, as a rule, in the city or in the country?

Doctor MELVIN. They were in the cities, most of them. We have had several cases where retail butchers applied for exemption, and we investigated their premises and found them very filthy, and declined to furnish them with the exemption certificate until they would clean them up.

Mr. SCOTT. Have you had applications for inspectors that you have not been able to supply?

Doctor MELVIN. No, sir; we have provided inspection at all places where we deemed it necessary, and at some where they had not applied they were required to have it or to forfeit their interstate business.

Mr. BROOKS. If they applied and you did not furnish the inspection, you would necessarily have to give them an exemption certificate?

Doctor MELVIN. Either one or the other. We have tried to furnish them inspection or give them exemption, provided the conditions of their establishments were satisfactory.

Mr. SCOTT. What sort of a financial exhibit are you prepared to make? Can you state definitely whether the appropriation made last year will carry you through the year?

Doctor MELVIN. Yes; there is no doubt about it.

The CHAIRMAN. Let us take up some other little details before we go into that. If you have not any other suggestions or amendments with regard to changes of the law, suppose you tell the committee now just how you put this measure in operation in an individual establishment.

Doctor MELVIN. Well, they came on us all at once, and it was pretty hard to do it.

The CHAIRMAN. You have some establishment in your mind. Tell us how you go to work, from the beginning. Never mind the ante-mortem inspection; we all know about that—that is in the yard—but take the post-mortem examination of a bullock or a hog and follow it up to the end, and tell us where your inspectors are placed.

Doctor MELVIN. Take it in one of the larger houses. We have three inspectors on hogs. One inspector is located where the head is nearly severed from the body—not entirely. His duty is to feel and see the cervical glands of the neck. They are the glands that are usually affected if a hog has tuberculosis. In case he finds these glands affected, the hog then goes to what we call a retaining room, a separate room which has an impervious floor and ceiling and is set aside for such hogs. No further operation is made on that hog, which is not disemboweled until it reaches this retaining room.

The CHAIRMAN. That is a change from the former way, is it not?

Doctor MELVIN. Yes; we consider that that avoids dressing the hog with the other hogs, and there is no chance for the blood to become smeared upon the carcasses of adjoining hogs. Then another inspector is located where the hog is disemboweled, and these intestines and lungs are thrown directly in front of him on a table, so that he can handle each set sent to him and ascertain whether there is any disease in them. In case there is, the intestines and lungs are attached to the hog, and he is shunted into this retaining room for further investigation. Then a third man makes a minute investiga-

tion of these hogs that are sent to the retaining room. An operating table, a small table, is provided, and a good light, and an antiseptic box. At all of these places boxes containing fluid antiseptics are provided for the disinfection of knives and hands after finding an affected hog. Here a minute examination is made of this hog, and it is determined there what disposition shall be made of him. Separate trucks are provided in which the diseased hogs are placed and in which those that are passed are placed.

The CHAIRMAN. That is the post-mortem of the hog?

Doctor MELVIN. Yes.

The CHAIRMAN. Then you return to the hands of the company the hogs that are passed for meat—for consumption?

Doctor MELVIN. Yes.

The CHAIRMAN. And those that are condemned go directly to the tank?

Doctor MELVIN. Yes, sir; they go into a tank in which a considerable quantity of offal is placed so as to render the grease unfit for food, so as to discolor it, and in addition the tank is sealed both at the top and bottom.

The CHAIRMAN. Now take up the cattle inspection.

Doctor MELVIN. The inspection of cattle is practically the same as it was, as I described it last year.

The CHAIRMAN. How many inspectors have you on cattle in a place of that size on the post-mortem?

Doctor MELVIN. I would say in regard to this hog inspection that as far as possible all three of these inspectors rotate—that is, each man takes the work of another man—and change their work and relieve each other in that way.

The CHAIRMAN. What is the salary of these inspectors?

Doctor MELVIN. The salary of the veterinarians—the entrance salary—is \$1,200.

The CHAIRMAN. Those three inspectors are all at the same salary?

Doctor MELVIN. Not all the same. They are increased according to length of service, and their efficiency, of course, is considered.

The CHAIRMAN. Some of them enter at \$1,200?

Doctor MELVIN. Yes.

The CHAIRMAN. Now go on with your description of the cattle inspection.

Doctor MELVIN. There are usually two inspectors at the large houses where cattle are killed, and both of these are veterinarians. They alternate and are on duty two hours each—two hours on and two hours off—the idea being that it is very confining work, and frequently they are employed from ten to twelve hours; not usually, however. That is not the average time, but it is not infrequent that they do work that long in a day. These men must walk back and forth, while the hog inspectors remain at one point. If the cattle inspectors are on duty longer than that, they may become somewhat relaxed in their work.

The CHAIRMAN. What is the actual post-mortem examination of a bullock after he is killed?

Doctor MELVIN. The cattle, instead of being run along on rails from one workman to the other, as hogs do, are run out on a rail and dropped onto the floor on what they call beds, and they are there skinned; but before being completely skinned the carcass is partly

hoisted and the animal is disemboweled. The inspector is constantly present when these animals are disemboweled and actually sees, or where necessary actually handles, the intestines from each animal slaughtered, and he passes from one animal to the other.

The CHAIRMAN. Is it a question of glands also with the cattle, the same as with the hogs?

Doctor MELVIN. Not so largely as with the hogs. There is a much larger percentage of tuberculosis among hogs than among cattle—that is, among beef cattle.

The CHAIRMAN. What is the main trouble you find with cattle on the post-mortem?

Doctor MELVIN. I think tuberculosis also—that is the main trouble.

The CHAIRMAN. It is the main trouble with cattle also?

Doctor MELVIN. Yes.

Mr. FIELD. About what percentage of hogs is found diseased and rejected absolutely as food?

Doctor MELVIN. Our report, of course, would show the positive figures.

Mr. FIELD. Yes.

Doctor MELVIN. I think about three-tenths of 1 per cent.

The CHAIRMAN. On cattle?

Mr. FIELD. On hogs.

The CHAIRMAN. On hogs; yes. It had been running up to  $1\frac{1}{2}$ , I believe, for a time. It ran very high on some hogs butchered up in that dairy section in Wisconsin.

Doctor MELVIN. At some stations it ran in some droves of hogs as high as 80 per cent in a single drove—a single carload.

Mr. FIELD. Is it not true that the percentage of diseased hogs is greater in those sections where they have bred the hogs up and forced the growth rapidly?

Doctor MELVIN. It is usually higher in the dairy sections, irrespective of the breeding of the hogs. In some experiments that we have completed during the past year at our experiment station we determined that hogs could become affected with tuberculosis by eating the fæces from cows that were affected with tuberculosis—in other words, hogs that follow cattle that are affected with tuberculosis will almost invariably acquire tuberculosis. The germs of the disease pass through with the fæces and are taken up by the hogs.

Mr. FIELD. Is the percentage of diseased cattle greater or less than that of hogs?

Doctor MELVIN. It is less. That ought to be qualified, too. It is according to the section of the country from which they come. From the pasture and range country—strictly beef cattle—the percentage of tuberculosis is very small, while in some sections the percentage of tuberculosis among dairy and breeding cattle is very large. An exporter of thoroughbred cattle who lives in Indiana bought a shipment for export. These cattle were purchased in Illinois, Missouri, Kentucky, Indiana, and Ohio. All these cattle were tested for tuberculosis by Bureau inspectors. He would accumulate a number in a certain section, and we would send the most available veterinarian to this section and test them. Out of that shipment there were 50 per cent rejected for tuberculosis.

The CHAIRMAN. And probably each one of those cattle was in splendid condition?

Doctor MELVIN. They were the best cattle, the shipper told me.

The CHAIRMAN. In a case like that the ante-mortem examination would be perfectly useless?

Doctor MELVIN. Yes.

The CHAIRMAN. That is very striking, that an animal can show strong lesions like that, and yet be apparently in good condition.

Doctor MELVIN. Yes.

Mr. HENRY. These were Jerseys, mostly, I suppose?

Doctor MELVIN. No, sir; they were Shorthorns.

Mr. HENRY. Do you think if they had remained on the farm they would have had tuberculosis?

Doctor MELVIN. They had it at the time.

Mr. HENRY. I know; no doubt it was present in a latent form, but do you think it would have developed if they had remained on the farm?

Doctor MELVIN. Oh, I have made a number of post-mortem examinations of animals apparently in the best of health, fat, and in fine condition in every way, apparently in perfect health, and upon post-mortem examination they would be simply rotten with tuberculosis; the lungs, intestines, liver, and spleen all affected.

Mr. FIELD. With the cattle you have described, in good condition otherwise, is it deleterious to eat them?

Doctor MELVIN. It is the accepted idea in all countries now that tuberculosis is transmissible. That has not been absolutely proven.

Mr. FIELD. I can not understand why an animal in good condition should not be used.

Mr. LAMB. Is not all possibility of injury eliminated by the process of cooking?

Mr. HENRY. Right there, I have known calves fed on tuberculous milk, from tuberculous cows, which were affected and condemned, and the calves were raised healthy, and were kept until they were 3 or 4 years old, and never developed any symptoms of tuberculosis.

Doctor MELVIN. It frequently occurs that the milk from tuberculous cows, providing the udder itself is not affected, does not contain the germs of the disease.

The CHAIRMAN. It may skip a generation, just as it does in human beings.

Doctor MELVIN. There is always danger of the udder becoming soiled with the feces, and portions of those dropping into the milk, and contaminating the milk.

The CHAIRMAN. Now, you had reached that point in regard to the post-mortem of the bullock's body. Where do you take him next? Does he go through the same process as the hog?

Doctor MELVIN. In case of any question in regard to the extent of the disease which would render the animal unfit for food or not, he is then conveyed to a similar retaining room, where a further and closer examination is made. Ordinarily, however, if an animal is condemned at that time, he is taken directly to the tank and placed in a tank or sent to a retaining or condemned room, and several are tanked at one time by a lower grade man who has to do with the tanking and oversees the tanking and sealing.

The sheep inspection and the calf inspection are conducted very much the same as the cattle inspection.

The CHAIRMAN. How many inspectors would you have for the sheep and calves?

Doctor MELVIN. Usually one. They usually slaughter the calves and sheep in adjoining parts of the building—that is, on the same floor—so that one inspector can oversee the slaughtering of both classes of animals. Both of these classes of animals are usually free of disease, and it does not require the same close supervision that it does with hogs and cattle.

The CHAIRMAN. That inspection practically is just about what you had under the old law?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Up to that point. Now you have got the carcasses in the coolers. Now, what is your inspection of the cooler, as you carry it along through the manufacturing process?

Mr. FIELD. I would like to ask one question for information.

The CHAIRMAN. Certainly.

Mr. FIELD. Have these inspectors discretion, or are they compelled to reject the carcass? In other words, have they discretion to say whether a carcass is unfit for food or not?

Doctor MELVIN. The Department, as near as it can, describes the condition at which animals shall be condemned and where they may be passed for food; but the judgment as to when a disease has reached the point where the animal shall be condemned or passed must necessarily rest with the inspector.

Mr. FIELD. The mere presence of the disease does not necessarily mean that he must reject it?

Doctor MELVIN. No, sir.

Mr. FIELD. They will still have the discretion to say whether it is fit for food?

Doctor MELVIN. If, in their judgment, the disease has not reached this condition where the regulations say that the animal shall be condemned, they will pass it.

Mr. FIELD. There are rules governing their action?

Doctor MELVIN. Yes.

Mr. FIELD. From the Department?

Doctor MELVIN. Yes. The passed hogs, for instance, after they have been killed, come out on the cutting floor to be cut up into the different cuts. Our inspectors—these are the meat inspectors—super-vise this process and see that the pieces are kept off of the floor, that the tables on which the animals are cut up are kept clean, that the employees of the packing house are clean and do not soil the meats with dirty clothing or dirty hands, and all of the meat cutting is supervised in that way.

The CHAIRMAN. That really comes under the sanitary regulations, does it not?

Doctor MELVIN. That is under the sanitary regulations. After meat has been in pickle and is taken out the meat inspector, together with the inspector for the establishment, inspects the meat to see whether it has been thoroughly cured or not, and any that is not thoroughly cured and is unfit for food is condemned at that time. It is also inspected after it has gone through the smoking process. Fresh meats are inspected before they are shipped out of the establishment, to see whether they are in fit condition or not. The making of sausage is supervised to see that only clean and wholesome

meats are used, and that the whole process is conducted in a cleanly manner.

The CHAIRMAN. What actual reform has taken place in the dress and clothing of the workmen? Have you inaugurated white clothing?

Doctor MELVIN. We have not conducted any definite reform in the matter of clothing, but the meat handlers are required to have some apron or outer garment that is capable of being kept clean. When they are handling wet meats they usually have an impervious apron next to their clothing and a washable apron outside of that.

Mr. SCOTT. At the institutions I visited at Kansas City the inspectors wore an official cap with a badge.

The CHAIRMAN. The inspectors did?

Mr. SCOTT. Yes.

The CHAIRMAN. I asked Doctor Melvin if the employees were required to use a uniform in the way of white aprons, and all that sort of thing.

Mr. SCOTT. I misunderstood your question.

Doctor MELVIN. It varies. At some establishments they have adopted a uniform for their employees. The women have a certain sort of garment which they use, with caps—white caps—and the men have another sort of uniform. At one place they have established three colors, I believe, for their uniforms, one for those who handle meats, and another for their mechanics, and another for their common laborers—I think it is something of that sort—so that the color will distinguish the kind of work that the person is doing. At Kansas City the employees of the Department voluntarily adopted a uniform of their own, a washable uniform; but that has not been made general. The regulations require employees of this Department to conform to the same general sanitary regulations as the employees in the establishment would, and to keep themselves clean and their clothing clean. These meat inspectors also have to inspect the meat that is received from other official establishments. Many shipments are made from one official establishment to another, and each shipment is required to be inspected before it is admitted into the establishment.

The others are assigned to the oleo departments and the lard departments, to see that only clean and wholesome fats are used and that the fats after they are made into lard or oleo or oleomargarine, or whatever it may be, are properly labeled, and have no false or deceptive labels placed upon them. The canning room is also under supervision, where they do canning, to see that only wholesome meats are used, and that no false labels are placed upon the cans.

The CHAIRMAN. How do you know that no ingredients injurious to health are used?

Doctor MELVIN. The Department has specified certain preservatives and ingredients which may be used, and others are prohibited. Those that are permitted to be used are such as have been in use for many years and have not been found detrimental to health.

The CHAIRMAN. Could preservatives be surreptitiously mixed with these food products without the inspectors knowing it, do you think?

Doctor MELVIN. We have undertaken to keep a check on that by having small chemical laboratories established at various centers. We have one at Omaha, one at Kansas City, one at Chicago, one

at Cincinnati, and one here in Washington, and one in New York City. Different products are taken at different times and subjected to chemical analyses, and also the pickle in which the meats are cured, and their salts and spices, and different things of that sort, are occasionally examined.

Mr. LAMB. Are they allowed to use borax now?

Doctor MELVIN. No, sir.

The CHAIRMAN. So far, have you found any injurious preservatives being used?

Doctor MELVIN. We found one establishment in New York, a small sausage concern, that was using a prohibited preservative, and inspection was withdrawn from that place. In one other instance, which is still under investigation, a prohibited coloring matter was used.

The CHAIRMAN. In the manufacture of what?

Doctor MELVIN. That was in the manufacture of sausage, also, I believe.

Mr. COX. Does that mean that these fellows are still going on manufacturing, only it is not marked "Inspected and passed?"

Doctor MELVIN. No, sir. In this latter case the practice was stopped, of course—the use of this color. It was a branch establishment of a larger concern, and the principal establishment was asked why this had been permitted and why it had been done, and the case has not yet been decided as to the final action.

Mr. COX. In the case you spoke of where the inspection was withdrawn—that did not mean that the establishment ceased doing business, did it?

Doctor MELVIN. They had to forego their interstate trade. Of course they may continue their business within the State.

Mr. BROOKS. What was the effect on the business of that concern from which inspection was removed?

Doctor MELVIN. Their principal business was within the State, and it did not affect them very materially.

Mr. SCOTT. Have you any opportunity to find out to what extent the great packing concerns were obliged to modify their methods, or their formulas, in order to comply with the new regulations?

Doctor MELVIN. Well, it was the general practice to use borax in small quantities in nearly all their pickled meats, except that which they sold within States which prohibited the use of it. Those meats shipped to those States were prepared without it. In other instances it was almost invariably used in the pickle.

Mr. BROOKS. Are the big concerns still using borax or boracic acid for their interstate business?

Doctor MELVIN. No, sir; the policy of the Department has been when it commences inspection or inaugurates inspection at an establishment, to have the same rules apply, no matter whether the product is for use within the State or without the State. It would be impossible to make any other rule.

Mr. BROOKS. They could not feasibly have two systems.

Doctor MELVIN. No; they would have to separate their business and provide separate establishments.

Mr. SCOTT. Have you had any complaint from any of the packers that your refusal to allow them to use chemicals that they have been

using, dye stuffs or preservatives, was interfering with their business?

Doctor MELVIN. Yes; in some respects. They wanted the use of a color in oleo oil, which was exported principally to Turkey. They wanted to use a vegetable compound called anatto.

The CHAIRMAN. That is used in the coloring of butter. You said anatto?

Doctor MELVIN. Yes; that was permitted in the case of oleo oil. We have not permitted the use of coloring matter in any other meat compound, and we have not had any direct complaints regarding its prohibition.

The CHAIRMAN. Was anything used by the respectable packers before the enactment of this law?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. What was that?

Doctor MELVIN. Usually a coal-tar dye of some sort.

The CHAIRMAN. In the preparation of what?

Doctor MELVIN. Principally of sausages. Almost all sausages were colored somewhat. And since they have all abandoned the use of it, we have failed to hear any complaints. I think it was entirely unnecessary, and I think they have come to that conclusion themselves.

The CHAIRMAN. It is similar to the fashion in coloring butter; it is absolutely unnecessary as far as the product itself is concerned.

Doctor MELVIN. Yes.

Mr. SCOTT. It has not been brought to your attention, then, that any considerable quantity of meats have been spoiled as the result, so claimed by the packers, on account of your refusal to allow them to use preservatives?

Doctor MELVIN. No, sir; not directly; that is, in considerable quantities. We had a case yesterday of a meat manufacturer from Massachusetts who complained because he was not permitted to use a preservative in his sausage.

The CHAIRMAN. That was Massachusetts sausage?

Doctor MELVIN. Yes. He claimed that it caused his sausages to spoil quicker, and he was unable to market them within a few days from the time of the making.

Mr. BROOKS. What preservative would be used in a case like that, borax, or what?

Doctor MELVIN. He desired to use benzoate of soda.

Mr. BROOKS. Would benzoate of soda be harmful?

Doctor MELVIN. I am not prepared to answer whether it would or not.

The CHAIRMAN. Why are you not, Doctor; because men differ on it? Is it because scientists differ as to whether it is injurious to health or not?

Doctor MELVIN. Yes; I think they do differ; there is no doubt of that. They differ on borax, too; the most eminent authorities differ on that.

Mr. SCOTT. Right along this line, one more question. I noticed the other day in a business place here in Washington a keg of cider exposed for sale labeled "Sweet cider, to which has been added a small quantity of benzoate of soda." Now, if it is doubtful whether benzoate of soda is injurious to health, I should not think that the



Department would allow a product to be sold with that adulterant or preservative.

Doctor MELVIN. They may do so, I understand.

The CHAIRMAN. That comes under Doctor Wiley's bureau, does it not?

Doctor MELVIN. So far as products other than meats are concerned, it would. The pure-food regulations regarding the use of preservatives—that is, as to what preservatives may be used, and to what amount, or what are harmful and what are not—have not yet been made, and I presume that the same policy will be followed under both laws, that if a preservative is permitted to be used under the one law, it will be under the other, so far as practicable.

The CHAIRMAN. That is, if the chemists of both bureaus agree?

Doctor MELVIN. Of course the Secretary—

The CHAIRMAN. Will decide?

Doctor MELVIN. He is the one who makes the regulations.

Mr. COCKS. And he will agree with himself.

Mr. HENRY. Did you permit this Massachusetts sausage manufacturer to continue the use of a preservative?

Doctor MELVIN. The question is still before us, I believe.

Mr. FIELD. Is there any inspection of fresh fish and oysters?

Doctor MELVIN. No, sir.

Mr. LAMB. They have got State inspection of that stuff.

Doctor MELVIN. I understood that you referred to this law that we are now discussing. Of course under this law they are not provided for at all, and I do not know of any Federal inspection of those products; but, as Mr. Lamb says, the States may do that.

Mr. LAMB. We have a rigid inspection in Richmond.

The CHAIRMAN. Have you had any trouble in deciding upon the labels? I have seen in the paper every once in a while some discussion, some dispatches and what not, about mislabeling, and that sort of thing. Have you had any trouble about the old labels they were using before this law went into effect?

Doctor MELVIN. Yes.

The CHAIRMAN. What did you do with the roast-beef labels, for instance?

Doctor MELVIN. It was finally decided that on the product which they formerly called roast beef they could attach a label calling it "roast beef," and underneath say "parboiled and steam roasted," qualifying it in that way.

The CHAIRMAN. "Parboiled and steam roasted?"

Doctor MELVIN. Yes.

The CHAIRMAN. What other labels did you make them change?

Doctor MELVIN. We required them to stop using the words "leaf lard" where the lard was not made out of the leaf fat. A great deal of their pure lard which was called "leaf lard" was not made out of that fat.

The CHAIRMAN. Right there, was your inspection in the establishments so that you could determine which lard was made of leaf and which not?

Doctor MELVIN. We are trying to determine that; yes, sir. That is usually possible.

The CHAIRMAN. Is it possible after manufacture?

Doctor MELVIN. No.

The CHAIRMAN. You had to determine it, then, before the raw material, as it were, went into the process of being manufactured into lard?

Doctor MELVIN. Yes. Then, in the case of steam-kettle lard and open-kettle lard, we required them to differentiate on the label between the two, as to whether it was open or steam kettle.

The CHAIRMAN. What is the difference between those two lards?

Doctor MELVIN. One is cooked in an open kettle by heat applied to the kettle on the outside, and the other is cooked, as I understand, by live steam.

The CHAIRMAN. What is the difference in the process itself?

Doctor MELVIN. There is quite a difference, the open kettle being considered much the superior of the two. Then in the use of different meats in cans; for instance, in the case of potted ham, which has been quoted quite extensively, it was usual to use trimmings of meat, and to add to them some cuttings of smoked chipped beef, which would give it the smoke flavor. Now they are required, if they call it potted ham, to make it out of ham or ham trimmings—the trimmings from hams, and if it has anything else in it they can only call it “ham flavor;” if it is given the smoke flavor and not made out of ham they can only call it “potted meat, ham flavor.”

Mr. BROOKS. In the trade, can they dispose of meats that are put up that way?

Doctor MELVIN. Yes.

Mr. BROOKS. We heard a good deal last year about brawn and potted chicken. Do they still sell brawn?

Doctor MELVIN. Yes; but they do not sell so much potted chicken.

The CHAIRMAN. Brawn goes abroad, mostly, does it not?

Doctor MELVIN. I do not know where it goes. It disappears, somewhere.

The CHAIRMAN. It goes down the alimentary canal somewhere.

Doctor MELVIN. Yes. Of course potted chicken does not come strictly within the provisions of the meat-inspection law; but where chicken is mixed with other meats, the label must state the kind of meats, chicken and veal or whatever it is, pork or whatever it may be, or they may simply call it “potted meat” without any reference to the kind of meat. But if the kind of meat is specified, it must be that kind of meat only.

Mr. BROOKS. What did they do in the case of the brawn? There was a good deal said about that.

Doctor MELVIN. Brawn seems to be a general term that is used for the product, very much like the old-fashioned head cheese, and it is permitted to be used on such a product.

The CHAIRMAN. Is the word “brawn” a sufficient label?

Doctor MELVIN. We consider it so; yes, sir.

The CHAIRMAN. Though it is composed of what?

Doctor MELVIN. I think it is composed principally of head meat of hogs. It is a good deal like the old-fashioned head cheese. It has a good deal of beef in it. It has been a custom to always make it that way.

The CHAIRMAN. Was there much palming off of veal for chicken?

Doctor MELVIN. Yes, sir; I think there was.

The CHAIRMAN. Was there a mixture of chicken with it all—a certain proportion of chicken?

Doctor MELVIN. In a great deal of it there was none whatever.

Mr. CROMER. How many additional inspectors has the Department employed to carry out this law?

Doctor MELVIN. I think that I have a statement somewhere that will show that. It is about 1,200 additional.

Mr. CROMER. How many of them were veterinary surgeons and how many of them were engaged in other employment before they became inspectors?

Doctor MELVIN. The classes are not given in the statement that I have here, but I can submit that to you later, if you will permit me to.

The CHAIRMAN. Are not these men all veterinary surgeons?

Doctor MELVIN. No; a large number of them are meat inspectors.

Mr. CROMER. One thousand two hundred you have employed additional, including the meat inspectors?

Doctor MELVIN. And veterinarians and all.

The CHAIRMAN. About half and half?

Doctor MELVIN. No, sir; the larger number were the meat inspectors.

Mr. CROMER. Have you been able to get a sufficient force of meat inspectors and veterinarians through the civil-service process?

Doctor MELVIN. With reference to the meat inspectors, we have; but we had to employ some veterinarians outside of the civil service.

The CHAIRMAN. Did the President suspend the civil-service law?

Doctor MELVIN. Their regulations permit us to employ until they can furnish a list from which we can select.

Mr. CROMER. That is under the rules of the Civil Service Commission?

Doctor MELVIN. Yes.

Mr. HAUGEN. Were they temporary appointments?

Doctor MELVIN. Yes; they were temporary appointments.

Mr. CROMER. These meat inspectors are usually butchers, are they?

Doctor MELVIN. Yes, as a rule; men who have had experience in handling meats. I do not know that a very large per cent of them are butchers in the usual sense of the term, but they are men who were engaged in handling and curing and preparing meats.

Mr. SCOTT. Most of them were packing-house employees, were they not?

Doctor MELVIN. Yes; most of them.

The CHAIRMAN. What is that?

Doctor MELVIN. He said packing-house employees. My answer was not just the answer for that question. A number of them came from the packing houses, but there were, of course, men who had worked in packing houses, either large or small, at some time or other. Quite a number of them were men who had been engaged in business for themselves.

Mr. CROMER. What salary do you pay the meat inspectors?

Doctor MELVIN. One thousand dollars per annum.

Mr. CROMER. All of them receive the same salary?

Doctor MELVIN. Yes; at present. There were two experts to whom we gave additional compensation.

Mr. LEVER. Do not all these men have to be experts in some sense or other?

Doctor MELVIN. These two to whom we gave additional compensation were men whom we considered much superior to the others.

Mr. LAMB. Does Owen, in Richmond, get more than \$1,000?

Doctor MELVIN. Yes; he is a veterinarian. I think his salary is \$1,400.

Mr. LEVER. All these men are regarded as experts in their line, are they not?

Doctor MELVIN. To some extent; yes, sir.

Mr. LAMB. But they are not all veterinarians?

Doctor MELVIN. No; none of the meat inspectors are veterinarians.

Mr. HAUGEN. Has there been any increase in the salaries over last year?

Doctor MELVIN. Yes; we have given them some increase over last year.

Mr. BROOKS. Where our meats come into competition in foreign countries with meats from other countries, like Argentina and Australia, have you any data as to the effect of the inspection law? That is, has it put American meats on a higher plane, or has it worked injuriously?

Doctor MELVIN. I think that the effect of the passage of this law and its enforcement has been to remove considerable of the prejudice that had existed regarding American meats. I think there is no doubt of that fact.

The CHAIRMAN. Do you think there was any prejudice against them before this agitation last spring—more than what might be due to competition?

Doctor MELVIN. I do not think so; no, sir; not before the agitation was started.

The CHAIRMAN. Just what you might call competitive suspicion?

Doctor MELVIN. Yes.

Mr. BROOKS. Then what you mean is that the passage and enforcement of the law did away with the prejudice and uncertainty that was aroused by the agitation that led to the passage of the law?

Doctor MELVIN. Yes.

Mr. LEVER. Do you have any evidence in the way of increased exports to show that?

Doctor MELVIN. No; I do not know that we can show that by figures.

The CHAIRMAN. I think you can. The Argentine business has increased, but it is due to the law of supply and demand. The foot-and-mouth disease has been prevalent in Argentina, and that has very much curtailed their supply.

Mr. SCOTT. A report was published the first of the year that the export of American meats and meat products was greater during 1906 than during any previous year.

The CHAIRMAN. That is true. We have sent more dressed beef there than for a number of years, but that is due to the falling off of the Argentine supply, because that meat is landed there under exactly the same conditions as to inspection as heretofore; is that so?

Doctor MELVIN. Yes.

Mr. SCOTT. In October I visited one of the large packing houses in Kansas City, and there I was shown a large six-story building, standing absolutely empty, which prior to the agitation had been filled with people employed in canning meat.

Mr. LEVER. What I wanted to get at was whether this agitation

had caused any falling off in the exportation of meat and meat products.

Mr. BROOKS. It did for several months, did it not?

Doctor MELVIN. Yes; in canned goods.

The CHAIRMAN. It stopped the canned-goods business abroad; entirely stopped it?

Doctor MELVIN. Yes.

Mr. LEVER. And then, upon the passage of this law for the inspection of meat products, the trade resumed the normal, did it?

Doctor MELVIN. I do not think the canned-goods trade has regained its normal proportions at all.

The CHAIRMAN. Nowhere near it.

Mr. SCOTT. A consular report issued a few weeks ago showed that the canned-goods trade had fallen off 40 per cent.

The CHAIRMAN. Were you not in Chicago when they told us that they had an aggregate of \$10,000,000 worth of canned goods tied up that they could not stir at all—not at the Annex, but at the Auditorium Hotel?

Doctor MELVIN. Yes.

The CHAIRMAN. And all that surplus is being forced off now in the cheap quarters of the big cities at almost any price they can get. It stands there a big mountain in their way, and the sale of that was stopped by the agitation of last year. If I am not mistaken, they said that the aggregate of all the canned meat products there was \$10,000,000.

Mr. HASKINS. It was all wholesome, too.

The CHAIRMAN. Perfectly wholesome.

Mr. CROMER. About this sanitary inspection; what changes were made in these big packing houses to make their establishments sanitary under this law?

The CHAIRMAN. Do you particularly refer to water-closets?

Mr. CROMER. I am asking him what changes were made and what expense it was to the packing establishments to make their establishments comply with the regulations of the Department under this law.

Doctor MELVIN. The changes at some of the establishments amounted to almost a complete rebuilding of the former plants. There was one large firm, which has establishments in several cities, which will be unable to finish their reconstruction within three years. This reconstruction will cost them, in some instances, I was told, in the neighborhood of \$150,000. It consists in putting in materials that are more sanitary in nature, the floors being replaced with more sanitary material, providing additional ventilation and dressing rooms for their employees, toilet facilities, and things of that sort, and rearranging their sewerage system.

We had considerable trouble along that line in requiring them to remove catch basins from within the houses and put them outside the houses so as to remove odors, and to keep the odors from the tank and fertilizer department out of the other parts of the establishment. And the question of the material from which the floors and trucks shall be made is still under investigation.

We have had an expert architect, who is also quite well qualified in sanitary measures, investigating the various establishments, with an idea of formulating some general plans whereby sanitary floors and

trucks and implements and all things of that sort can be made. The packers themselves are conducting investigations along that line. They are building the floors out of different materials to see which answers the purpose the best, and it will probably be a matter of at least two years before all of these changes can be made so as to fully comply with the intent of the law. In the meantime some of the present equipment is being utilized and kept as clean as it is possible for hot water and scrubbing to make it. Many of the side walls, where blood and offal was splashed before, are either lined with galvanized iron or have been cemented for a considerable distance from the floors, and floors have been relaid.

The CHAIRMAN. You refer mostly to the old packing houses, or do you refer to them as a general proposition?

Doctor MELVIN. There were very few but what had to make some changes. As I said in the first place, some of them are being almost rebuilt from the ground up.

Mr. CROMER. Do the veterinary surgeons and meat inspectors do the sanitary inspection as well?

Doctor MELVIN. Our regular force does all of that, except this expert whom we have had out, as I mentioned, has been investigating these conditions.

The CHAIRMAN. Outside of your salaries, what are your next greatest expenses connected with your Bureau in the enforcement of this law?

Doctor MELVIN. We have some material to supply in the way of labels and stamps and certificates, and also some office rent and telephone service, and some horse hire at some stations. Those are the principal items of expense outside of salaries.

The CHAIRMAN. Will you itemize a statement of that kind up to date? The House may want to know how much is in salaries and how much in other expenses. I would like to have it furnished to the committee, if you can possibly do it. Have you got it with you?

Doctor MELVIN. No, sir; I have not, in that shape.

Mr. HASKINS. Would it not be well to have a pretty complete exhibit of that?

The CHAIRMAN. Yes; I say an itemized statement as to the salaries and printing, traveling expenses, telephones, and so forth, itemizing the whole account.

Mr. HASKINS. There will be another increased expense now, for your railroad fares.

Doctor MELVIN. Railroad fares have always been paid in the meat-inspection service. In the field work in the West free transportation was available heretofore, which now has to be paid for.

The CHAIRMAN. I see there is a proposition in the bill from the Secretary here, recommending that the Department be allowed to buy mileage books.

Doctor MELVIN. Yes; that is for the use of our inspectors in the West.

The CHAIRMAN. I suppose it would apply to all the traveling agents in the Department, in all the various bureaus?

Doctor MELVIN. Yes; probably.

The CHAIRMAN. I do not know that it is a question that ought to be put to you, but, in your opinion, would not that open a dangerous door? These mileage books are good for everybody and anybody.

Could you keep track of them? Take it in your own Bureau; could you keep track of these mileage books properly?

Doctor MELVIN. I think we could. At present they have books containing requisitions for transportation, which are issued, and they might be abused. But we never have found that they have been abused. This would enable the Department to obtain mileage at commercial rates.

The CHAIRMAN. You would have to keep track of the mileage, would you not?

Doctor MELVIN. Yes; I suppose so.

The CHAIRMAN. An inspector could take his wife and family along if he wanted to?

Doctor MELVIN. He could readily be checked up.

The CHAIRMAN. You would have to check up these mileage books of every trip you ordered an inspector to take?

Doctor MELVIN. Yes.

The CHAIRMAN. Would not that be a good deal of a labor?

Doctor MELVIN. No, sir; I do not think so.

Mr. LEVER. If you will pardon me a moment, Mr. Chairman, I want to get this clear. We will take Doctor Melvin back a little bit. We had a severe agitation last year about this meat business—the packing business. I want to ask the doctor whether or not, in his opinion, that agitation hurt seriously our export trade in meat and meat products?

Doctor MELVIN. There is no doubt but what it did for a time.

Mr. LEVER. For a time. Now I want to ask you this—if this bill prepared by this committee has had any effect whatever in restoring the confidence of our foreign buyers of meat and meat products, and are we beginning to get back on a normal basis in the export of these products?

Doctor MELVIN. Yes; I think we are, quite rapidly.

Mr. LEVER. Is it your opinion that it is the result of this bill?

Doctor MELVIN. Yes.

Mr. LEVER. Prepared by this committee?

Doctor MELVIN. Yes.

Mr. FIELD. Is there any doubt in your mind that this agitation and complaint was justly founded?

Doctor MELVIN. Some of the claims were simply ridiculous, upon the face of them—many of them.

Mr. FIELD. I know that.

Doctor MELVIN. There was some foundation for many of the complaints that were made. I think that the passage of the bill and the enforcement of the law has resulted in removing nearly all the cause for complaint.

Mr. LEVER. Did the cattle growers of the West, or the country generally, suffer any by this agitation in the reduced price of their cattle?

Doctor MELVIN. I think not. I think cattle prices have kept up about as well as they ever were.

Mr. HAUGEN. The fact of the case is that they were advancing every day—the prices of stock—during the agitation.

Mr. LEVER. Due to the agitation?

Mr. HAUGEN. No; during the agitation; not due to the agitation.

Doctor MELVIN. The demand for stock was very great during the late summer and early fall. I have been informed that when the purchase of this thin class of stock, which is usually bought for canning, was stopped by the packers within a very short time the feeders began purchasing this class of stock and the price went right back to where it was before; so that there was really no lowering of the prices of live stock.

Mr. LEVER. If it had not been for the passage of this act, is it your opinion that the price of cattle would have decreased?

Doctor MELVIN. That is pretty hard for me to determine. Of course the consumption of the country itself is becoming greater each year, with the introduction of over 1,000,000 immigrants each year, so that our home demand is replacing our export demand.

The CHAIRMAN. There never was such a consumption as within the last three or four months; and as I tell you, our export demand is made by the failure of the Argentine supply. Our beef is selling in London to-day at  $10\frac{1}{2}$  or  $12\frac{1}{2}$  to 13 cents; that is higher than it has sold for years.

Mr. LEVER. What is the occasion of the Argentine shortage?

The CHAIRMAN. They have the foot-and-mouth disease and England has a very strict quarantine against it, and we are simply enjoying the result of their misfortune. That is the plain fact of it. I do not think it is due to anything but the law of supply and demand. But the canned goods will undoubtedly be very soon restored to the place where they belonged by this bill.

Mr. BROOKS. And if we had not done something they never would have been restored.

The CHAIRMAN. That is correct.

Mr. LEVER. What I wanted to bring out was that this agitation destroyed entirely our trade in meat and meat products, and this committee, which has been so severely criticised, has passed this bill, and it is our bill which has restored it. That was the point.

Doctor MELVIN. I think that the meat that was affected by this agitation was almost entirely confined to canned meats. I do not think our fresh meat suffered at all.

Mr. HENRY. But the testimony given before this committee was a vindication of American meats aside from canned goods.

Doctor MELVIN. Yes.

Mr. HENRY. That is, as to over 90 per cent—94 per cent. It was a vindication of that class of meats.

Mr. BROOKS. The criticism existed only as to about 3 per cent of our meat products?

Mr. HENRY. The canned goods; about 6 per cent. The canned goods and sausages, and so forth.

The CHAIRMAN. Who was it who testified to that—Mr. Wilson?

Mr. BROOKS. No; it was Reynolds.

Mr. SCOTT. On the inspection service, I would like to ask a question. In going through the packing establishments in Kansas City in company with your inspector in charge there, I inquired as carefully as I could as to the way in which the law was being administered, and I found only one complaint that could be regarded as at all serious.

The packers said that the regulations required the ante-mortem examination, inspection, to be made after the cattle had gone over



the scales and entered the chutes and pens of the establishment, whereas they insisted that just as good results could be reached with much less trouble and expense to the buyers of the cattle if the inspection were permitted before the cattle had been weighed out. I would like to ask if any change has been made in that regulation, or what has been done about it?

Doctor MELVIN. There has been some change made in it, the construction of the law being that this ante-mortem inspection can not be made until the animals have been purchased for slaughter. The first interpretation of the law was that this ante-mortem inspection should only be made on the premises of the establishment where they were to be slaughtered; but the Secretary modified that to permit the inspection being made in the stock yards, but after they had been bought and weighed up to be slaughtered, the Solicitor of the Department holding that we had no control over the cattle until that time.

The CHAIRMAN. The language of the bill is this:

The Secretary of Agriculture, at his discretion, may cause to be made, by inspectors appointed for that purpose, an examination and inspection of all cattle, sheep, swine, and goats, before they shall be allowed to enter into any slaughtering, packing, meat-canning, rendering, or similar establishment, in which they are to be slaughtered, and the meat and meat-food products thereof are to be used in interstate or foreign commerce.

It says "before they shall be allowed to enter." How do you interpret that?

Doctor MELVIN. That they do not come under our jurisdiction until after they have been purchased for slaughter.

Mr. HASKINS. The question of the intention, whether they are to be used for interstate commerce, enters right there.

Doctor MELVIN. Yes.

The CHAIRMAN. What was the custom before the passage of this law?

Mr. MELVIN. They were inspected before they were weighed.

Mr. SCOTT. The wording of this law will change that; it seems to me, under the wording of that law the cattle could be inspected in the farmer's feed lots.

Mr. HASKINS. No; for the reason that they have to wait until they have been actually sold to be used in interstate commerce. That is all.

Mr. SCOTT. I did not interpret it that way.

The CHAIRMAN. I did not interpret in that way, either.

Mr. FIELD. The mere intention on the part of the owner that they should sell them to a person who would then kill them for use in interstate commerce would make them interstate cattle.

The CHAIRMAN. The way it reads is "before they shall be allowed to enter."

Mr. Cox. That is permissive.

The CHAIRMAN. It is all in the discretion of the Secretary. He is not required to make an antemortem inspection; is not that true?

Doctor MELVIN. Yes. But if he does do it, I understand the point to be now that the Department can not assume jurisdiction over these cattle until they have been brought for slaughter in an establishment which is doing an interstate business.

Mr. SCOTT. That point might just as well have been raised under the old law, might it not?

Doctor MELVIN. I presume it could have been.

The CHAIRMAN. This paragraph is almost word for word that of the old law.

Mr. SCOTT. This paragraph is taken verbatim from the old law, except that it was changed sufficiently to make it discretionary with the Secretary instead of compulsory; and if it was the practice under the old law to make these antemortem examinations before the cattle were weighed out there can not be anything in this law to require a change in that respect. It must be simply a new interpretation of the old language. I think they told me, as a matter of fact, that they found as the only possible *modus vivendi* that they had to make their examinations before the cattle went onto the scales, the regulation to the contrary notwithstanding.

Mr. FIELD. I would like to ask a question for information. Is it the intention or disposition of this committee to reopen the question of upon whom the charge should be placed for the inspection?

The CHAIRMAN. The whole question is open for discussion. The subcommittee will submit the bill for the approval of the full committee. It opens the whole question to the whole committee, subject to amendment or provision.

Mr. COX. Mr. Field asked if it is the intention of the committee, so far as you know, to open up this question.

The CHAIRMAN. I do not know. That is a matter for the individuals.

Mr. HAUGEN. You have no amendments to suggest?

Doctor MELVIN. No; no more than I discussed sometime ago.

Mr. HAUGEN. You are satisfied with it as it is? I believe your reply was that you had no amendments to offer?

Doctor MELVIN. Well, I made some suggestions that I thought would be good, but there may be danger of its being destroyed rather than amended if we attempt too much.

The CHAIRMAN. I suppose that is a matter for individual action. Any member who wishes to offer an amendment can do so. You will furnish us with data of the expenditures, Doctor?

Doctor MELVIN. Yes.

The CHAIRMAN. Have you a memorandum of that?

Doctor MELVIN. Yes. Do you wish that now?

The CHAIRMAN. Oh, no; you have not it with you?

Doctor MELVIN. I think that what I have here will answer your purpose. I do not know whether it is sufficiently detailed or not.

The CHAIRMAN. Just read what you have there.

Doctor MELVIN. These are liabilities. They are not expenditures, but what we have estimated for the quarter ending December 31, 1906. For salaries, \$514,104.16. For additional compensation—that is where they are obliged to have horses and we give them additional compensation for the use of their horses—\$405. For leases—that is, rent for offices and quarters—\$4,279.49.

The CHAIRMAN. Have you had to increase your quarters at these several places?

Doctor MELVIN. Oh, yes; at a number of places.

The CHAIRMAN. To increase the floor space—the size?

Doctor MELVIN. Yes; not many. In New York we had to hire larger quarters. We did not have to do so in Chicago. But in some places where there were one or two establishments before and we had

to obtain additional quarters we have done so. At stations where there are now eight or ten establishments we would have to hire quarters that would be more accessible to all in the several places.

The CHAIRMAN. Go on.

Doctor MELVIN. Under specific authorization there is \$15,607; under general authorization, \$11,377; under requisitions for supplies, \$54,144; under informal bids—that is, for horse hire—\$1,112, making a total of \$601,330.41 for the quarter.

The CHAIRMAN. That would be two millions and a half, in round figures, for the year?

Doctor MELVIN. Yes.

The CHAIRMAN. You think, then, that the \$3,000,000 is going to be ample for you right along—that permanent appropriation?

Doctor MELVIN. I think it will. I know it will for this fiscal year, and I think it will for next year.

Mr. HAUGEN. I think last year you estimated for this year about \$2,200,000, did you not?

Doctor MELVIN. Yes; in that neighborhood. I think we now have under inspection nearly all the places that will require it. Of course I do not know; there may be some others.

The CHAIRMAN. As a matter of comparison, let the estimates there go into the record, and then furnish us with the actual expenditures under that record up to the 31st day of December.

Doctor MELVIN. I do not believe we would be able to get those for some little time yet, as the bills are coming in all the time.

The CHAIRMAN. Have not the bulk of them come in?

Doctor MELVIN. I presume so.

The CHAIRMAN. You know about your salaries?

Doctor MELVIN. Yes.

The CHAIRMAN. Do so to such limit as you can, and then on bills that are not paid give us an estimate.

Doctor MELVIN. This is the maximum. The actual expenses will be less than that.

The CHAIRMAN. Suppose that that happened to be the minimum instead of the maximum. You would have to pay your bills all the same.

Doctor MELVIN. I do not think it will be. The expenditures for the first quarter, or rather the liabilities for the first quarter, were \$304,202.

The CHAIRMAN. What do you call the first quarter—July to October?

Doctor MELVIN. July, August, and September.

The CHAIRMAN. That was all in the way of preparatory work?

Doctor MELVIN. Yes.

The CHAIRMAN. When did your salaries commence—the salaries of the veterinarians and meat inspectors?

Doctor MELVIN. The large increase did not commence until about the latter part of September. We commenced increasing along about the middle of September, and appointing these men and getting them in the service; but the increase for the second quarter was almost twice what it was for the first quarter.

The CHAIRMAN. Give us the itemized expenditure as far as you can for the second quarter—from the 1st of October to December 31. That will be pretty near a sample quarter. Not quite, but pretty

near a sample quarter. Are there any other questions that the committee wants to ask?

Mr. COCKS. Did the Doctor offer any amendment to the bill for the relief of the small packer?

The CHAIRMAN. Only one. That was in relation to the hog slaughtering of calves and lambs; and he is going to draw a little memorandum as to that for the consideration of the committee.

*Statement (partially estimated) of expenses payable from the appropriation "Meat inspection, Bureau of Animal Industry, 1907," for the period October 1 to December 31, 1906.*

Salaries .....	\$502, 587. 38
Horse hire (additional compensation for) .....	385. 00
Horse hire (under informal bids) .....	1, 432. 00
Rents of offices, etc .....	4, 346. 42
Travelling expenses .....	13, 266. 07
Station expenses (supplies, car fare, etc.) .....	9, 024. 68
Telephone service .....	646. 45

**Supplies:**

Miscellaneous, office supplies, etc .....	5, 522. 48
Envelopes .....	528. 80
Badges .....	1, 148. 00
Seals for marking cars, bags, etc .....	3, 450. 00
Stamps, meat inspection .....	5, 960. 00
Tags, meat inspection .....	1, 311. 25
Labels, meat inspection .....	32, 500. 00
Lumber .....	567. 75
Certificates .....	785. 00
Furniture .....	1, 767. 63
Hog rings .....	350. 00
	<hr/> 53, 890. 91

Total .....	585, 578. 91
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(At 3.30 o'clock p. m. the committee adjourned until to-morrow, Thursday, January 10, 1907, at 10.30 o'clock a. m.)

COMMITTEE ON AGRICULTURE,  
HOUSE OF REPRESENTATIVES,  
*Thursday, January 10, 1907.*

The committee met at 11 o'clock a. m., Hon. James W. Wadsworth (chairman) in the chair.

**STATEMENT OF DR. HARVEY W. WILEY, CHIEF OF THE BUREAU  
OF CHEMISTRY, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. Gentlemen, we have Doctor Wiley before us this morning. On page 29 of the bill you will find the estimates for the Bureau of Chemistry. Let us take up this salary roll first. I suppose, as I said to Doctor Melvin yesterday, that your modesty, Doctor, would forbid you to speak about the amount that the Secretary estimates for your salary?

Doctor WILEY. I am not so modest as not to approve it, Mr. Chairman. In that respect I am frank to say that I am a bachelor, and I do not need the money; but I believe that the office ought

to be recognized with the dignity of a salary commensurate with the importance of the work.

The CHAIRMAN. You would not think that some of the insignia would do as well as a salary?

Doctor WILEY. If you will make it a rank that carries a pension with it on retirement, I am perfectly willing to take that as a substitute. But I am not here as a mendicant, begging for the necessities of life. But after the twenty-four years of service I have given the Government, and trying to do the best I could, and especially at the present time, I doubt if there is any bureau of the Government that touches the public welfare at so many points as the Bureau of Chemistry, as it is organized under the new laws. We touch all kinds of commerce and trade and industry, all problems of sanitation, and—

Mr. HENRY. Do you use that word "touch" in the ordinary acceptance?

Doctor WILEY. No, sir; I will not use the word "touch" to-day in that acceptance. But I should like to see the salary made commensurate with the dignity of the office.

Mr. HENRY. What is the present salary?

Doctor WILEY. \$3,500. And I would be very pleased if you gentlemen would recognize that service by making the salary the equivalent of the usual high-grade bureau chiefs. That is all that I have to say. I will subscribe the \$1,500 to two worthy colleges the day you give it to me, to help education. I will promise you to do that.

The CHAIRMAN. Now, for the chief clerk of the Bureau there is an addition of \$200 to the salary.

Doctor WILEY. That comes, I think, very justly with the increased duties of the office, and to make the salaries somewhat the same, I believe all the other chief clerks in the Department get \$2,000, and mine only gets \$1,600, and I think the increase is a very just one:

Mr. SCOTT. This is a man?

Doctor WILEY. A woman.

Mr. SCOTT. How long has she been in the service?

Doctor WILEY. Ever since the Bureau was made a bureau—six years now, and before that time as a clerk for fifteen years. I think that is a very proper increase.

The CHAIRMAN. The chief clerk of the Bureau of Plant Industry gets \$2,000 and the chief clerk of Bureau of Animal Industry gets \$2,000. What does the chief clerk of the Bureau of Forestry get?

Doctor WILEY. The chief clerk of the Bureau of Soils, I believe, gets \$2,000.

The CHAIRMAN. The chief clerk of the Bureau of Forestry gets \$2,000, I believe. No; that is a submittal. That is a new thing. You say the Bureau of Soils has \$2,000?

Doctor WILEY. I think so.

The CHAIRMAN. Yes; the chief clerk there gets \$2,000.

Doctor WILEY. I would be perfectly willing to have you make it \$2,000, to make it uniform.

The CHAIRMAN. The trouble is that this question of uniformity is always up. How long did you say she has been in the employ of the Government?

Doctor WILEY. Twenty-one years.

The CHAIRMAN. How many increases has she had in that time?

Doctor WILEY. She began at about \$50 a month, I think.

The CHAIRMAN. Is there anything further that you want to say on that point?

Doctor WILEY. Nothing more on that point.

The CHAIRMAN. Now, your 4 clerks of class 2; you ask an increase of 2.

Doctor WILEY. What I have to say will be in regard to all the increases of clerical force asked for, because it is all on the same ground. This increase becomes a necessity under the new duties of the Bureau, and I am sorry to say that, having made this estimate before I had much idea of what the clerical work would be, I do not think that I have asked for enough. We want our clerks to be on the statutory roll, and when I submitted this to the Secretary I thought that would cover the increased work; but, Mr. Chairman and gentlemen, I do not think you can have any idea of what has happened since this food law was passed in the increased clerical work of the Bureau. We get an average of over 1,000 letters a day. Before this happened our correspondence was about 150 letters a day. These are all insisting on immediate answers, and some of them very knotty problems.

Mr. LAMB. You had 1,200 letters one day when I was up there.

Doctor WILEY. Yes; we have had 2,000 letters in one day.

Mr. SCOTT. How many additional clerks are you asking for in these estimates?

Doctor WILEY. We ask 7 additional clerks, I think, in this estimate.

Mr. SCOTT. Now, do I understand you to wish at this time to submit estimates for some additional clerks?

Doctor WILEY. I want to make a statement in regard to that. I want you to give me more, so that we can have them statutory positions.

Mr. SCOTT. What are these, ordinary clerks? They are not scientists?

Doctor WILEY. No; they are not scientific people. We are going to ask the civil service for a file clerk. The filing of our letters now will require an expert, somebody who has been trained in that line. But the most of this clerical force is for correspondence and clerical work of that description. For instance, take the filing of one guaranty and getting it on the books, seeing that it is all right in the first place and properly signed and acknowledged before a notary. We have four or five people working on that. There are 75,000 people in this country who will want to file a guaranty with the Secretary of Agriculture who are engaged in manufacturing and jobbing industries.

The CHAIRMAN. And all under this new law?

Doctor WILEY. All under this new law. The law requires that no dealer shall be prosecuted who can establish a guaranty—that is, if the parties from whom he bought the goods certify that they are within the jurisdiction of the law—and the regulations provide that instead of giving a guaranty with every bill he sells the manufacturer or dealer may file a general guaranty with the Secretary of Agriculture, and the Secretary of Agriculture will give a serial number, and he may print that number on the label which he puts on his

goods, and that will be accepted as an indication of who gave the guaranty. We have now waiting to be filed and adjusted perhaps 1,000 applications, and we have already acted upon 3,000 and issued serial numbers. That is an illustration of the increase in the work, and this will continue right along.

I have one other thing to say. We have an estimate here for 3 clerks at \$840 and 3 clerks at \$720. I am going to ask you if you will make that 6 clerks at \$900? I will tell you the reason why. We get certification after certification from the civil service for these clerks, and in about two-thirds of the cases the people who have been notified of their certification have refused the positions on account of the salary. They would not come at \$720; and I do not blame them, because it is quite difficult for anyone to live half decently in Washington now on \$720 a year, and I have asked you to make it instead of 3 clerks at \$840 and 3 clerks at \$720, 6 clerks at \$900, and then we will be able to get a better grade to begin with. I will ask you to very carefully consider this, because we are very anxious that all our clerks shall hold statutory positions, for more than one reason.

Mr. SCOTT. Let me ask you this question, Doctor: When a man is certified to you and does accept the \$720 salary, do you find him capable of doing the work satisfactorily?

Doctor WILEY. Very often very capable.

Mr. SCOTT. Have you succeeded in getting as many clerks as you have been authorized to employ?

Doctor WILEY. No; I am coming to that. But now we have appointed on the lump sum, since we have no other clerks, 5 clerks at \$720 in the last six weeks.

The CHAIRMAN. On the lump sum?

Doctor WILEY. Yes; for this extra work; and of that number 3 have already resigned, having secured better salaries at other places, so that we do not keep them long.

The CHAIRMAN. They got within the civil-service regulations, and then got transferred?

Doctor WILEY. No; some of them were transferred to the other Departments, but two or three resigned to go into outside work altogether.

Mr. CROMER. How would they get in the other Departments without getting in under the civil service?

Doctor WILEY. All these are civil-service appointees, every one of them. We get no other kind.

Mr. SCOTT. You find some difficulty in keeping your force up?

Doctor WILEY. We have great difficulty in keeping that grade of clerks who are efficient, and if they are not efficient we discharge them anyway, and I think it is a mistake to have these low salaries. I believe that we are the only Bureau that has that grade of clerks. I think \$900 is about the lowest that you will find in Government service elsewhere.

Mr. SCOTT. Do you often discharge clerks?

Doctor WILEY. Yes; we often refuse to make their temporary appointments permanent. We have done that in many cases.

Mr. CROMER. They are on probation?

Doctor WILEY. All are on probation for six months.

Mr. FIELD. Would not uniform salaries in the different Depart-

ments tend to prevent them leaving the Departments and seeking appointments in other Departments where salaries are larger?

Doctor WILEY. I do not know what to say about that.

The CHAIRMAN. I think it is a question of occupation. Some like one kind of work and some like another.

Doctor WILEY. I think it is a question of salary, too.

Mr. FIELD. Would not the uniformity of salaries prevent these transfers?

Doctor WILEY. Not altogether. In the Bureau of Animal Industry they needed a lot of chemists under the law, and we offered our services, and we did place our whole force at the service of the Bureau of Animal Industry for two months, just to help them to get ready to enforce that law on the 1st of October. Now, they had to have quite a lot of men, and some of my chemists who were getting \$800, \$900, and \$1,000 a year have been transferred to the Bureau of Animal Industry at salaries of \$1,200.

The CHAIRMAN. At how much salary?

Doctor WILEY. At an average of about \$1,200. There were two people who were getting only \$50 a month with us. I said: "I would not stand in your way; I want you to have this increase." These were not clerks, however; they were chemists.

Mr. COCKS. You said that there was no other place where there were such low salaries under the Government as in your Department. I see in the Bureau of Forestry there are 18 clerks at \$600 a year.

Doctor WILEY. Where is that—in the Bureau of Forestry?

Mr. COCKS. Yes.

Doctor WILEY. There may be other Departments or bureaus that have them. But my experience is that it would be better for the service to make those clerks all \$900 clerks. I think it would be better for the service. Now, Mr. Chairman, all this increase recommended for the statutory roll is for the service of the new law. We get along very well with our old work with the force that we had.

The CHAIRMAN. Right there, in view of the fact that you say that you already have some people from the lump sum to do clerical work, would you not do better to recast your statutory roll and then have us take it up and consider it?

Doctor WILEY. I have here a statement showing all of this—what we have on the lump sum and what we think we will need for the additional force. There is only one change to be made here. We want to change the name of one of the clerks to "assistant property custodian."

The CHAIRMAN. What is the increase?

Doctor WILEY. The total increase, if you add up what I have got there, will be from about \$23,000 to about \$50,000, for the statutory service.

The CHAIRMAN. You have estimates for \$41,800.

Doctor WILEY. Yes.

The CHAIRMAN. Now you increase that still further?

Doctor WILEY. Yes; up to about \$50,000. And I want to change the title of that one that I have written in pencil there.

The CHAIRMAN. Assistant property custodian?

Doctor WILEY. Yes.

The CHAIRMAN. The title should be changed to what?



Doctor WILEY. It should be changed to "assistant property custodian." He is the man who unpacks goods and puts them in the storeroom and issues them out on requisition. He is not a clerk at all. He is a very good man, and I have been informed that without that change of title he can not hold the position. He is down as a clerk, and he must be a clerk.

Mr. LEVER. You have a file clerk in the department?

Doctor WILEY. No, sir; not in the general Bureau. Our correspondence is very complicated now. That will be one of those clerks estimated for under this.

Mr. LEVER. You have a library clerk. What is a library clerk?

Doctor WILEY. That clerk has charge of the library.

Mr. LEVER. You have a separate library from the main library?

Doctor WILEY. Yes; we have a library right in our Bureau.

The CHAIRMAN. That belongs to the main library?

Doctor WILEY. Yes, sir; that belongs to the main library.

The CHAIRMAN. And you account to the librarian for the books?

Doctor WILEY. The librarian has supervision over my books.

The CHAIRMAN. You simply draw them on requisition, and hold them?

Doctor WILEY. Yes.

The CHAIRMAN. And the librarian has your receipt for them?

Doctor WILEY. Yes.

The CHAIRMAN. You are not buying your own books any more? You make a requisition on the librarian for the books?

Doctor WILEY. Yes; altogether.

Mr. SCOTT. You have nothing but technical books in this library?

Doctor WILEY. Nothing whatever; no novels. Some of the textbooks are pretty near to being novels, when you read them.

Mr. SCOTT. That can hardly be said of any that you write, I suppose?

Doctor WILEY. No; not of mine. Now, Mr. Chairman, if you are satisfied with what I have said about the statutory roll, I am ready to go on.

The CHAIRMAN. Are there any questions that any of the members want to ask?

Mr. COCKS. I would like to ask a question as to the duties of these clerks. It seems to me that in the different bureaus of the Department of Agriculture there ought not to be a discrepancy like this. Do your people do different work from that of the Bureau of Forestry?

Doctor WILEY. So far as writing and stenography is concerned, it is the same.

Mr. SCOTT. You are asking that this be made six clerks at \$900 each?

Doctor WILEY. Nine hundred dollars; yes.

Mr. COCKS. They do a different class of work from this just referred to in the Forestry Division?

Doctor WILEY. No; they are clerks that I want as stenographers and typewriters to write our letters from dictation.

Mr. SCOTT. We had information the other day that the Keep Commission had discovered that the salaries paid in the Bureau of Forestry for work of that character were less than in any other Bureau in the service.

Doctor WILEY. I believe that is true of the Forestry Service.

The CHAIRMAN. You have proposed an amendment there in that paragraph on page 30, toward the bottom, "and to establish standards therefor." Those words were stricken out of the bill last year?

Doctor WILEY. Yes; on a point of order.

The CHAIRMAN. The Senate refused to put them back.

Doctor WILEY. Yes.

The CHAIRMAN. There was a good deal of discussion on that, and there was a good deal in conference, and I think that the conference was unanimous in wanting to strike them out. Why do you want to put that in?

Doctor WILEY. I can explain that.

The CHAIRMAN. Is not that the mooted point, whether they want to give you the right to establish standards?

Doctor WILEY. I do not think that is the question. The Supreme Court has settled that. The Secretary of the Treasury was authorized to establish standards for teas, and he did so, and that case was carried to the Supreme Court on the ground that Congress could not delegate that authority, and it was unanimously held by the Supreme Court that Congress could delegate the authority. Under the appropriation act for the last five years the Secretary of Agriculture has been authorized, among other things, to establish standards of purity for food products, and under that authority he has established standards for two-thirds of all the food products in the country, and those standards have been uniformly adopted by the States. Right in the midst of his work came an objection on a point of order in the House that there was no law authorizing that, and I suppose the point was well taken. I am not a parliamentarian, but I suppose that it was well taken, and on that point of order it was thrown out of the bill. At the same time it was thrown out in the House the Senate put it all back except this one phrase.

Now you have an act of Congress that can not be executed unless the Secretary comes to some decision as to what is a standard of purity. He has got to do that, whether you authorize him to do so or not. He could not bring a suit unless he decided in his own mind what was the standard of purity.

The CHAIRMAN. The pure-food law does not in set terms authorize him to establish standards, does it?

Doctor WILEY. No, sir; but it authorizes him to bring suits in the name of the United States, or to ask the Attorney-General to do so. In order to do so he must determine that the law has been offended—that is, that the standard of the Government has not been complied with. That is the only condition on which he can bring a suit. Now we have standards already established, which will stand unless Congress repeals them, for about two-thirds of the things affected by this bill, and the other third will have to be tested by the Secretary. He will have to instruct his chemist, as he finds goods so-and-so, that they are an offense against the law. It seems to me that there is now a law authorizing this and requiring it, that it should be on the same plane of authority as the other.

A curious thing happened. The very members of the Senate who objected to this standard put into the appropriation bill a requirement for the Secretary to fix a standard for grains. Senator Hansbrough, a great friend of the pure-food bill, a strong supporter of

it, but an objector to the authority to fix standards, had put into the bill—and it was passed by Congress at the same time that the other was knocked out on the point or order—the very same thing. I say that if the Secretary has a right to fix a standard for grain, he has a right to do it for anything else, and under this bill he must do it. Whether authority is conferred in so many words, it is implied. He could not execute the law without it. I think that all ought to go on the same plane. All the States want it and are waiting for it. Every State official will say that this work ought to be completed.

THE CHAIRMAN. This part of the bill about grains reads in this way:

To enable the Secretary of Agriculture to establish and maintain, at such points of export as he may deem expedient, laboratories for the purpose of examining and reporting upon the nature, quality, and condition of any sample, parcel or consignment of seed or grain, \$15,000, or so much thereof as may be necessary; and the Secretary of Agriculture is authorized to report upon such samples, parcels, or consignments from time to time, and the reports so made shall serve as a basis for the fixing of definite grades and for the issuance of certificates of inspection when requested by the consignor or consignee of any grain entering into interstate or foreign commerce.

So that it is not mandatory or obligatory on him, and it is only upon request of the consignee or consignor that certificates of inspection are to be issued.

MR. LEVER. Could you not make this language to cover the case as it is in the grain matter—could you not make the language the same as that?

DOCTOR WILEY. I would be satisfied with that.

MR. LEVER. If you could do that, it seems to me that you would meet the objection.

DOCTOR WILEY. I think the committee ought to know with what favor the standards fixed have been received, and what a great benefit it has been to the State service, and what a benefit it will be to the national service. It unifies the procedure in all the States, and that is a thing that all the manufacturers and most of the people want, a uniform method of judging; and every State that has had authority has adopted these standards as far as they have been fixed.

Georgia and Louisiana have adopted them, and I think Vermont in its last act has done it. Quite a large number of the States have made legislative enactments. Other States allow the commissioner of foods to make the standards, and in every case where that authority is conferred upon the commissioner he has adopted our standards, word for word; so that they have become uniform throughout the whole country; the State authorities have adopted them. New York City has adopted them, and Kansas City has adopted our standards in toto for Kansas City, and they are going everywhere. It would be a great blessing for this country if that work could be completed and the whole country could be placed upon the same basis.

THE CHAIRMAN. You say that about two-thirds of the work of fixing standards has been done?

DOCTOR WILEY. Yes; about two-thirds of that work has been done. We have done an enormous amount of work. This committee consists of two committees, one appointed by the Association of Official Agricultural Chemists and the other by the State food officials,

which is to establish the standard for the purity of food products, which is about the same thing, only it does not carry the same authority, and these two committees are combined into one, and they are establishing standards for the States which it is hoped that the States will adopt; but of course we have not any right to establish any for the National Government, under the present wording of the law, and that is the reason that we want this restored.

The CHAIRMAN. What is the opposition to it?

Doctor WILEY. The opposition came from the whisky interest, as you will see by consulting the record of this committee for last year. That inspired the whole thing. Not in the case of Mr. Hansbrough, however. That was a constitutional point with him. But they worked very urgently before this committee last year, through Mr. Hough, to get you to rescind that authority. He made a very strenuous argument here against it, and this whole thing was inspired, as I believe—I have no positive evidence of it, and I do not know where else it came from.

The CHAIRMAN. What did they object to?

Doctor WILEY. To the Secretary of Agriculture fixing any standard for whisky. That is the long and the short of it. That is the whole source of this trouble; just right there. Now, the Secretary of Agriculture has got to make a standard for whisky before he brings a single case. He has got to fix that standard in his own mind, and he has got to instruct me and everybody else who has anything to do with the law as to his decision on that point. He has gone himself to visit the distilleries lately which make all this whisky, and he has had the people before him and has had a regular inquisition, and the object of that is in his mind to fix a standard whereby he can enforce this law. He is going to do it, anyway, and he wants the authority so that he can proclaim a standard; and all the States will adopt it.

I think it is a very just work and one that is very highly appreciated by the people of the country. It is very highly appreciated, and the people who are opposed to it, aside from those who think it is unconstitutional, are those who do not want standards of any kind. Of course, I have the greatest respect for the man who thinks that it is not right for Congress to delegate the authority. That is a different proposition. That is Senator Hansbrough's position entirely. But Congress has the right.

The CHAIRMAN. Who else would have the right?

Doctor WILEY. Congress could fix it.

The CHAIRMAN. By an absolute act in regard to each food product?

Doctor WILEY. Yes, sir. You can sit here and fix a standard for every food product, which is absolutely binding on goods in interstate commerce.

Mr. SCOTT. I think that that matter has been very energetically debated, as to whether Congress has the right to delegate the authority to fix railroad rates. Nobody questions the authority of Congress to fix railroad rates, but the authority of Congress to delegate that authority to another body is very strenuously disputed.

Doctor WILEY. I am not here to discuss that point. Somebody has got to do it. Congress has got to do it or Congress has got to delegate the authority, and the Supreme Court has held that the Secretary of the Treasury was wholly within his rights when he fixed

standards for teas. Now, you gentlemen know that you, sitting here, have not time to go into this investigation to ascertain what the correct standard is for a food. It requires a long and patient investigation of a scientific character, and each one of you would have to become a chemist to understand thoroughly all the problems connected with the manufacture of foods and their natural properties. Take the case of milk. The Secretary of Agriculture has established a standard for the fat in milk.

The CHAIRMAN. What is that standard?

Doctor WILEY. 3.25 per cent.

Mr. HENRY. That is a very low standard.

Doctor WILEY. It is too low; but we had such a tremendous force brought to bear on us to make it 3 per cent—you have no idea what pressure was brought to bear on us to do that.

Mr. HENRY. It is lower than the Massachusetts standard.

Doctor WILEY. Yes; it is lower than a good many State standards. A good many States have standards that are higher. Congress fixed the standard for the District of Columbia, and said that it should be 3.50. I think that is right. I should like to have it, myself. Now, how did they fix that standard? On the recommendations of scientific men that that was a fair standard.

Mr. LAFEAN. Was that applied to only certain seasons of the year, or to the whole year?

Doctor WILEY. No, sir; that is applied to the whole year; and it is low enough.

Mr. LAFEAN. There are certain seasons of the year when the butter fat is a little higher than at others.

Doctor WILEY. In the winter it is higher, and then when the cows get the succulent grass in the spring it is a little lower, but it never gets lower than 3.25. Now, unless Congress should pass an act fixing a standard on that, I think the Secretary should do it. I would be perfectly willing to come before you and make recommendations and say "Make that the law," if you think that is the better way to fix it.

The CHAIRMAN. Before we enter on this pure-food bill let me ask you this: Does that bill give you a great many powers that have been granted to you from year to year in these acts?

Doctor WILEY. It grants all the powers in the appropriation bill in relation to imported food products.

The CHAIRMAN. Had you not better recast that item?

Doctor WILEY. We are going to take it out altogether. Is it not marked out in this estimate?

The CHAIRMAN. It would be noted in italics if it was changed.

Doctor WILEY. No; it is in here, Mr. Chairman. All that is to be taken out. I did not know that it was here. In what I submitted to the Secretary I marked it all out.

The CHAIRMAN. Suppose that you resubmit that; submit another paragraph affecting the work that the Bureau was doing, not covered by the pure-food bill. The bulk of this is covered by the pure-food bill, and there is no use in reprinting it. It might lead to confusion.

Doctor WILEY. No; I am wrong about this. I think it is all out. That is another point altogether.

The CHAIRMAN. This reads, "to investigate the composition, adulteration, and false labeling or false branding of foods, drugs,

beverages, condiments, and ingredients," etc. That is certainly covered by the pure-food bill. That is on page 30, under the head of "Laboratory, Department of Agriculture; general expenses," etc.

Doctor WILEY. No; there is no authority granted in the pure-food bill for that purpose. The only thing we can do under that is to examine the samples taken under the act. For instance, there is no authority in the pure-food bill for this work. This should remain as it is, and also the provision for the cold-storage experiments upon the healthfulness of foods. That is not in the pure-food bill.

The CHAIRMAN. That was put in the pure-food bill, was it not?

Doctor WILEY. On page 30 it reads:

To enable the Secretary of Agriculture to investigate the character of food preservatives, coloring matters, and other substances added to foods, to determine their relation to digestion and to health.

The CHAIRMAN. Are you sure that this provision "to investigate the composition, adulteration, or false labeling or false branding of foods and drugs, beverages, condiments," and so on, is not covered in the pure-food bill?

Doctor WILEY. Not the investigation. We have to make the investigation in order to arrive at the decision. Under the pure-food bill all we can do is to arrive at that decision.

The CHAIRMAN. Further on we have the language that you have read:

To enable the Secretary of Agriculture to investigate the character of food preservatives, coloring matters, and other substances added to foods, to determine their relation to digestion and to health.

Doctor WILEY. That is not provided for in the pure-food bill. It says that the Secretary shall decide, but it does not say how he shall come to his decision, how he shall find it out. This goes ahead and says how he shall find it out.

The CHAIRMAN. How could you ascertain unless you did make experiments in this kind of work? I do not know that it does any harm to repeat it here, but unless it is necessary I believe in cutting this language as short as possible.

Doctor WILEY. I think it would be wiser to leave that in the bill. Otherwise we might have some legal complication. I do not know that we would, but we might have some legal complication in regard to our regular experimental work.

The CHAIRMAN. The proviso reads:

*Provided, That before any adverse publication is made notice shall be given to the owner or manufacturer of the articles in question, who shall have the right to be heard and to introduce testimony before the Secretary of Agriculture, or his representative, either in person or by agent, concerning the suitability of such articles for food, or as to false labeling or branding.*

That is absolutely pure-food legislation.

Doctor WILEY. Mr. Chairman, I told you how that got in there. For years we have never published any analysis of anything that that included without informing the manufacturer that we had made this analysis and submitting it to him and asking him for his comment, and I asked the committee a year or two ago to make that obligatory, so that nobody who might follow me who did not believe in that thing could take advantage of the manufacturer and publish that sort of thing without giving him a show. But that has nothing to do

with the enforcement of the pure-food act as an executive proceeding.

The CHAIRMAN. My idea was not to repeat in this paragraph any powers that were granted to you in this pure-food act.

Doctor WILEY. The pure-food act says that when you try a man, bring an indictment against a man for offending the law, you shall not make any publication until the court reaches a decision, so that when he is indicted you can not publish what he has been indicted for, and you can not do that until the court reaches a decision on the question.

The CHAIRMAN. Here you have a provision for something for which you have authority under the pure-food law.

Doctor WILEY. No; we have not. This is our general investigation that we must make, and the general manufacturer is protected in this.

The CHAIRMAN. Suppose we examine a man's goods under this authority and publish the result, irrespective of the pure-food law?

Doctor WILEY. We can do that, but we must give him a notice.

The CHAIRMAN. Is not that a power above and beyond the pure-food law?

Doctor WILEY. I think the object of it is to give the public a knowledge of the articles that are on the market.

The CHAIRMAN. That is the object of the pure-food law?

Doctor WILEY. Yes; but that is to punish a man for selling in interstate commerce. As I look at it, the pure-food law is to punish for a distinct offense, whereas the provision in the bill here is for an investigation, pure and simple.

The CHAIRMAN. It goes a little further than that. This provides for an investigation, but you have the power "to determine their relation to digestion and to health, and to establish the principles which should guide their use, and to publish the results of such investigations when thought advisable."

Doctor WILEY. Yes.

The CHAIRMAN. That is, of course, the club that I have always thought sufficient and that I have always believed took the place of the pure-food law.

Doctor WILEY. That club is not in the pure-food law at all.

The CHAIRMAN. Without having recourse to the pure-food law at all you can examine a man's goods, and if you find poison therein you can publish your results, under that paragraph.

Doctor WILEY. Yes, we can; but we could not do it under the pure-food law.

The CHAIRMAN. You could not do it under the pure-food law?

Doctor WILEY. No, sir; I do not think there is any authority for doing it in the pure-food law, and I think there is an inhibition against it—an implied authority against doing it.

Mr. COCKS. Do you not think that many people interested in the pure-food law and its passage did not realize the powers that the Department had under this clause?

The CHAIRMAN. Under that authority we have practically prevented the importation into this country of falsely labeled goods, injurious to health.

Doctor WILEY. But we did not do it under that authority. We did it under specific authority.

The CHAIRMAN. Was it not practically of the same kind?

Doctor WILEY. It authorized us to send back goods which did not comply with the law.

The CHAIRMAN. It authorized you to send them back. Publication under this bill would operate to exclude those goods from interstate commerce. People would not buy them.

Mr. SCOTT. My idea of the distinction between the pure-food law and the authority conveyed in this paragraph is this: Prior to the passage of the pure-food law, under the authority of this bill we could prevent the importation into this country of adulterated, impure, misbranded foods, but we could not prevent the interchange among the States of similar foods manufactured within our own borders. The pure-food law gives the same authority over interstate commerce that this formerly gave over foreign commerce, and under the pure-food law we can now prevent or punish the shipping of goods in interstate commerce which are injurious to health, which violate the provisions of the bill. Is not that about the line of the distinction?

Doctor WILEY. Yes; but it is not under this clause that we exclude them:

Mr. SCOTT. Yes; but under this clause, before the passage of the pure-food law, you might as the result of that general investigation publish the fact that certain foods were injurious to health by reason of being adulterated.

Doctor WILEY. We have done that for twenty years.

Mr. SCOTT. Yes. But those findings of yours did not have any legal effect.

Doctor WILEY. None whatever.

Mr. SCOTT. And it was simply in the way of notice to the people.

Doctor WILEY. Education; yes, sir; that is right.

The CHAIRMAN. We applied that same rule to certain seeds at the request of Mr. Trimble, of Kentucky, and he says that it has had a tremendous effect. Wherever the Department has found adulterated seeds they have published the names of the dealers of those seeds in the papers, and it has reduced the practice of adulterating seeds to the minimum, if not stopped it entirely.

Doctor WILEY. Suppose you take this out of the bill. Then our only avenue to publicity would be a court trial under the food law. We want to avoid the court trial by publicity, as far as possible, under this.

This has an additional signification which it never had before, because when the people find that their foods are wrong they know now that those who manufacture and sell them are liable to be taken before the courts, and therefore this will have an additional consequence. I think there is greater reason for this remaining just as it is now than there was before the pure-food law passed. The food law provides for no investigation or publication.

The CHAIRMAN. My only idea was that if this is the same there is no necessity in keeping it there and reprinting it year after year.

Doctor WILEY. I am of the opinion that it is very necessary.

The CHAIRMAN. I am almost convinced that this was sufficient without the pure-food law at all.

Doctor WILEY. But what corrected the trouble as to the foreign goods was not our publications.



The CHAIRMAN. No; but when you published a grocer who was selling adulterated goods he would just do it once and then his business would be ruined.

Mr. COCKS. It would not hurt them on the East Side, in New York.

Doctor WILEY. It would stop the man who was doing it innocently, but the man who was doing it knowingly and intentionally would not care.

The CHAIRMAN. That is so in all the walks of life. The man who wants to commit a crime will do it anyway, law or no law.

Doctor WILEY. Under this we can give a certificate before shipment. That is in here, and that is not in the pure-food law at all, and I hope that will remain.

The CHAIRMAN. Yes; that is very useful.

Doctor WILEY. Yes; very useful.

The CHAIRMAN. What have you done in regard to the cold storage?

Doctor WILEY. We have done a great deal and are doing still more. We have now two cold-storage houses. We have to lease them, unfortunately. There is some difficulty in controlling the conditions, but the authorities who own the storage houses have been very courteous to us.

We have placed in them different kinds of foods—fruits and milk and butter and cream and domesticated fowls and wild game. We have put in a certain quantity—a large quantity. For instance, we have about 300 quails in storage down here in Washington, and 200 spring chickens, and we have pieces of beef, and we have milk and butter and eggs, and many other things. We examine those things by cooking and tasting, and analyze everything by odor and taste when it goes in. We have a jury to pass upon everything. Then every three months we take a sample from the cold storage and we have a perfectly fresh sample of the same kind of goods, and test them together.

The CHAIRMAN. What is the temperature—above freezing?

Doctor WILEY. Sometimes it is way below freezing. It is just above the freezing point for milk and eggs. Fish and meat are frozen stiff.

The articles taken from cold storage and the fresh stuff of the same kind are treated in exactly the same way, and the jury does not know which is which, and we have them tested, and the odor and everything described by this jury, and then we have them analyzed; and we have discovered already, in the eighteen months that we have been carrying on this work, very important facts which I can indicate to you in advance of their publication. We are going to try to get a report out, if we can, at the present Congress, a preliminary report. Up to a certain point, say about three months, there seems to be no appreciable change. Eggs and milk we do not freeze. They are kept at just the freezing point, 32°. For fruits the temperature is a little above the freezing point, and for meats, fish, and game it is below freezing; they are frozen solid.

Mr. SCOTT. You say that up to three months there is no appreciable change. I would like to ask if that covers all the classes of foods that you have mentioned?

Doctor WILEY. No, sir; I am speaking particularly of the meats. Milk begins to deteriorate right away and so does cream. Eggs also begin to deteriorate immediately. Fruit is improved, and sometimes

continues to improve for three months. Meats improve up to about six or eight weeks. But after about three months for meat you can see that it has reached the maximum and then it begins to go down, I do not care how hard it is frozen.

The CHAIRMAN. Even if it is frozen solid.

Doctor WILEY. Yes, sir.

Mr. SCOTT. That is after three months?

Doctor WILEY. Yes. Action of a debasing character begins to take place. We find that meats do not taste as well and they do not smell as well, and every time the jury can pick that which has been kept over three months. Take our quail. We have quail a year old, and we have on the table cooked at the same time fresh quail. We cook them just alike, and you can distinguish between them, first by their looks, and then by smell and by taste. Every time, the jury can pick them out, blindfolded.

The CHAIRMAN. Just as you can do it with game that has been kept until it is ripe.

Doctor WILEY. This is not the ripening that you speak of in regard to game. This is not the blue, ripe taste that people like. There is no apparent change in the color of the flesh, so that when you cut it open it is not ripe in the sense that the gourmand likes a bird that must be blue and have the odor. This has no decayed odor of that kind at all. But that flesh has begun to dissolve and approach the ptomaine stage. The first step toward the formation of the ptomaine matter has been taken. It has a very much larger amount soluble in water than it had, and the taste is very much impaired, and the whole thing has deteriorated.

We are going to keep up that method of testing for perhaps two or three years until the article becomes inedible. I have one piece of meat in the thirteenth year of freezing. I fortunately got it in Cleveland.

The CHAIRMAN. It is still edible?

Doctor WILEY. No, sir; it is not.

The CHAIRMAN. Have you tried it?

Doctor WILEY. Yes, sir. I would not let my boys do more than taste it. It is full of ptomaines.

The CHAIRMAN. Have you found out yet the length of time that a piece of meat may remain in cold storage and still be good?

Doctor WILEY. We find that meat tastes and looks better after six or eight weeks in storage.

The CHAIRMAN. When does it reach the point of being entirely inedible?

Doctor WILEY. We do not know. It certainly is so at twelve years.

The CHAIRMAN. You think three months is about the limit?

Doctor WILEY. Yes; about. I have just stated that foods of all kinds, or of many kinds, improve in cold storage—fruits and meats and game improve for a certain time. Other foods, like cream and milk, begin to deteriorate from the day they are put in, and so we have to make a distinction in the analysis of foods. This, however, is not such a condition as to unfit the materials for use as food. I am a thorough believer in cold storage. This law was put in in the Senate. We did not ask for it. The object is to tell the people—and the cold-storage people in particular—how long they may safely keep their

articles of food, and I may say that legislation is waiting on the results of this work in a number of cities.

The authorities of Chicago wrote to me that they had pending an ordinance to require chickens to be drawn before they were put in storage. I told them—

We have chickens drawn and undrawn in cold storage, and we are determining which will keep the better, and I advise you not to enact this ordinance until we find out.

It may be that undrawn chickens keep better.

Mr. SCOTT. You have not determined that now?

Doctor WILEY. No. We have them that have been in since last spring. We have them taken out, once at the end of three months and once at the end of six months, and we could not see much difference up to that time between the drawn and undrawn; but the general impression is, where there is a difference, that the undrawn poultry is better. That may not come out in the end in that way.

The CHAIRMAN. Those chickens are frozen solid?

Doctor WILEY. Frozen solid.

Mr. SCOTT. Are you conducting any investigations to determine the value of canned meats after they have been held a certain time?

Doctor WILEY. No; that is not under this authority. But we might do it under the general authority above, and I think we ought to do that.

The CHAIRMAN. You surprise me by telling me that fresh fruit improves in cold storage.

Doctor WILEY. You will be surprised to put an apple in cold storage in November and see it get better and better up to April or March. It reaches its maximum and then drops very rapidly.

Mr. COCKS. Would not that be a winter apple, or an apple that under ordinary conditions would not reach its perfection before February or March?

Doctor WILEY. Of course, if an apple were perfectly ripe when it was put in cold storage it would not improve. I am speaking of an ordinary apple.

Mr. COCKS. I mean an apple such as you would put in a cellar to keep all the winter.

Doctor WILEY. A ripe apple would not improve any.

Mr. BROOKS. What I would like to get at is, is the improvement in cold storage greater than the improvement of the apple would be outside, some place, but kept in a proper place?

Doctor WILEY. The process is slower. An apple left in the open will reach its perfection more rapidly. Therefore the cold storage helps you to keep that apple in perfect condition for a longer while, and that is the principal object of cold storage.

Mr. COCKS. Have you tested any apples that you have had longer than four months?

Doctor WILEY. Yes; but they had begun to go down a little at four months. At six or eight months apples are perfectly good to eat, but they begin to lose their character and become spongy. Now, that is the character of that work, and it is extremely valuable.

Mr. COCKS. Is that true of any other fruit than apples?

Doctor WILEY. That is not true of the peach or any other fruit that ripens so quickly, but is true of pears and oranges and the like.

The CHAIRMAN. How about grape fruit?

Doctor WILEY. Yes, or anything of that kind.

The CHAIRMAN. You say that beef is better at the end of how long a time?

Doctor WILEY. From four to six weeks.

The CHAIRMAN. It is better in what respect?

Doctor WILEY. It is tenderer and has a more aromatic and pleasant taste.

The CHAIRMAN. Is it any more nutritious?

Doctor WILEY. No, sir; I do not believe so. It is a little tenderer and more easily masticated, and to that extent would be more easily digested; but aside from that I do not think it is any more nutritious.

Mr. LAFEAN. Would you, for my edification, at least, state how the grape fruit is produced, and by what mixing of other varieties?

Doctor WILEY. I am sorry, but that takes me out of my bailiwick. I am not a pomologist.

The CHAIRMAN. Mr. Galloway will tell you that.

Mr. LAFEAN. I am very much interested in the grape fruit, and what is the cause of its production?

Doctor WILEY. I like very much to be interested in it every morning at breakfast time. I am very fond of it.

Mr. HAUGEN. How long should meat be kept before being used?

Doctor WILEY. Very often it is used fresh, in the country. I have seen meat put in the pan when the muscles were still trembling. I think that meat ought to be allowed to cool, anyway, before cooking.

Mr. HAUGEN. Would it be safe after three or four or five days?

Doctor WILEY. Yes; of course.

Mr. HAUGEN. And you can keep meat a great deal longer than three weeks? I have understood that the best practice was to keep it a number of days.

Doctor WILEY. I think it improves it a little to keep it some days; perhaps from four to six weeks at a proper temperature.

Mr. SCOTT. Is there any way in which the presence of ptomaines can be detected in meat by casual examination?

Doctor WILEY. Well, no; except that if it kills you, it has ptomaines.

Mr. BROOKS. There is no way that a layman can tell?

Doctor WILEY. No, sir; that is the unfortunate thing about ptomaine poisoning. And there is the trouble about preserving meat. You attempt to preserve it and the sterilization is not always perfect, and especially in fish or oysters, which so readily develop ptomaines; their tissues break down most readily into this ptomaine poison.

Mr. SCOTT. Do ptomaines develop in other foods besides flesh?

Doctor WILEY. Yes; but not so readily. The ptomaine will develop in an egg, for instance.

Mr. SCOTT. Does it develop in a fruit or a vegetable?

Doctor WILEY. It might develop in a pea or a bean, but it would not in anything that was not rich in nitrogen. It must be very rich in nitrogen to develop ptomaines.

Mr. BROOKS. Take the fish and oysters that are shipped to the interior—they ship them constantly. What is the limit there of safety, or is there not any?

Doctor WILEY. If oysters are properly packed and kept cold and properly fed, they can be shipped for eight or ten days without danger. I took with me across the ocean a barrel of oysters, and I fed

them every day corn-meal gruel and salt, and the steward came to me and said: "I wish you would come down with me and notice those oysters. Every time I feed them I can hear them chew." And when you put your ear down to the barrel you could hear them opening their shells and closing them.

Mr. BROOKS. That is a very important point. In Colorado we are served, if we want them, Baltimore oysters.

Doctor WILEY. I believe that you can get them there in first-class condition if you keep them cool and keep them fed. They must be kept alive, of course.

Mr. BROOKS. The difficulty is not so much in the shipment, but in keeping them alive after they get there?

Doctor WILEY. I think eight or ten days is long enough to keep oysters out of the water.

The CHAIRMAN. They have in Fulton Market, in Chicago, just as fine oysters as you will get anywhere.

Doctor WILEY. Yes; they send them there in twenty-four hours in express trains.

Mr. BROOKS. Yes. They are very fine oysters.

The CHAIRMAN. The worst oysters that go out through the country are pail oysters, where they are sent up from Baltimore and other shipping points, opened.

Doctor WILEY. Yes; opened. They should not be allowed to go into interstate commerce. They are dead, and their shipment in interstate commerce ought to be prohibited.

Mr. HASKINS. How long ought they to be kept after they are opened?

Doctor WILEY. Not longer than twenty-four hours. An oyster an hour after it is opened is dead and not good. It loses its flavor. After it is opened is dead and not good. It loses its flavor.

Mr. HASKINS. Oysters shipped to the West are generally frozen.

Doctor WILEY. Oh, they ought not to be frozen. That ruins them, and as soon as they thaw they are dangerous.

Mr. COCKS. An oyster as long as he is alive is generally healthful. Often in our country, right next to the coast, we used to get a lot of oysters and pile them up in the cellar, because of the difficulty of getting them out of the water through the ice; and they improved. We would keep them all the winter.

Doctor WILEY. Yes. As long as you keep your oyster alive he is all right. But the greatest outrage in the oyster trade is to soak an oyster with fresh water so as to swell him up and make him look fat, and that is a constant practice.

Mr. HAUGEN. How about those sent out in tin cans?

Doctor WILEY. They are all right. They are very good eating.

Mr. HAUGEN. How about those in the tubs?

Doctor WILEY. I would not touch them.

Mr. HAUGEN. You would not touch those bulk oysters?

Doctor WILEY. Never. They are either preserved with some preservative or they are dangerously near the ptomaine line, one of the two.

Mr. BROOKS. A good many halibut are shipped up in bulk to New York and are carted back into the country.

Doctor WILEY. I do not know. They come here in good condition. Salmon come here from the Pacific coast frozen almost as

good as the day they are taken out of water. I am invited to a dinner soon at which we are to have salmon; there are to be shipped on here a half dozen of the finest salmon that have ever been caught, and those fish are frozen solid.

Mr. BROOKS. Will that be within your ten-day limit?

Doctor WILEY. No; that will be longer.

Mr. CROMER. I thought you said they were not as good?

Doctor WILEY. No; they are not; but there is no danger at all in that state; you can keep fish a year without any danger of ptomaines if well sterilized in cans.

Mr. SCOTT. There was a report a few years ago about a mastodon or some prehistoric animal which was found in Alaska, frozen in the ice, and it was said that the meat of that animal was chopped out and eaten by the natives. What would be your judgment about that?

Doctor WILEY. Well, I read some stories, you know, *cum grano salis*.

Mr. SCOTT. You think that story ought to be taken with a grain of salt?

Doctor WILEY. It would require a good deal of salt for me to take a piece of that mammoth. I do not believe it. When I see a piece of meat frozen thirteen years and it is not fit to eat, and then I see a mastodon frozen thirteen million years, I think that he has passed the limit.

Mr. BROOKS. He might get good again.

Doctor WILEY. Yes; he might have reformed.

The CHAIRMAN. I see you ask for \$750,000 to carry out the provisions of the pure-food law. Will you tell us just what you think the organization is going to be?

Doctor WILEY. Coming before a committee like this, I feel like a bachelor who is about to fit up a house for the first time. It is a little premature to try to tell everything you are going to do. But I will try to outline what the Secretary has indicated to me as his policy in the enforcement of this act.

As you know, the police powers of this bill are committed to the Secretary of Agriculture, while the enforcement of the bill is in the hands of the Attorney-General and the Secretary of the Treasury. The Secretary of Agriculture does all the preliminary work. Now, we have asked and have secured \$250,000 for the rest of this fiscal year. Under that authority we have immediately asked the Civil Service Commission to hold an examination for two classes of chemists, one class, the higher class, with a maximum salary of \$3,000 a year, and the younger chemists with a maximum salary of \$2,000 a year.

The object in the first place is to get men of experience of the higher class who would not like to undertake an ordinary academic examination because of their eminence in the profession, and because, for another reason, which I am free to admit is a good one, they may have forgotten a good part of their chemistry, and it would be difficult for them to write an examination successfully. Those we want to be chiefs in the different parts of the country to take charge of the laboratory work.

The CHAIRMAN. How many laboratories do you expect to establish?

Doctor WILEY. We hope to increase the efficiency of the inspection

of imported foods by establishing laboratories at Buffalo, Detroit, St. Paul, along the Canadian line, for the control of our Canadian importations, which we have not tried to control at all as yet; and then we want another either at Charleston or Jacksonville, on the Atlantic coast—not at Baltimore, because we can control that from here. We have Boston, New York, and Philadelphia, and we want one other, either at Charleston or Jacksonville.

The CHAIRMAN. You have one at New Orleans?

Doctor WILEY. We have one at New Orleans and hope to have one in Texas, at Galveston. Then, passing up the Pacific coast, we have our laboratory in San Francisco, which, by the way, was destroyed, and we lost \$5,000 worth of goods there.

The CHAIRMAN. We increased that for you last year.

Doctor WILEY. Yes; and we are replacing it. We have no place of our own there now. We are guests of the university authorities, in quarters given to us by them, now. Then we want a laboratory at Portland, Oreg. For the interior we want one at St. Louis, and probably one at Denver. Those are ports where a great deal of goods come.

The CHAIRMAN. You have one at Chicago now?

Doctor WILEY. Yes.

Mr. BROOKS. You said Denver?

Doctor WILEY. Yes. That is the plan for increasing the inspection of the imported articles. These laboratories would also be utilized for interstate work where necessary.

The CHAIRMAN. You do not propose to establish another laboratory under this bill where you have a laboratory already?

Doctor WILEY. No, sir; certainly not. Now, as regards the other work, we hope not to be under the necessity of establishing any laboratories at all, because the Secretary, under the authority of the food law, which says that he shall, or may, collaborate with the State officials, is going to make an effort to get into collaboration with the State officials of every State in charge of foods and drugs, with the purpose of utilizing their chemists and laboratories at fair compensation, thus bringing them into close touch with our work.

It so happens that in almost every State when the official begins the investigation he finds in the end that it is something that came from out of the State, and we can collaborate with them in their work and they can collaborate with us in our work and thus diminish the expense, and to that end we have sent to every State official a copy of the article on the examination issued yesterday by the Civil Service Commission, and suggested to this official if it is not interfering with his work to have his people, as many as he would like, take this examination, so that under it they may be appointed agents under our law and collaborate with us, and we pay them in accordance with the work they do for us. We think that will diminish the expense and be very advantageous otherwise.

The CHAIRMAN. Adding to their State salaries?

Doctor WILEY. Well, as far as they will permit it, or want it. I have talked with a number of the State officials, and they say that it will help them wonderfully in their own work, and they can increase their force in their own work by our paying them for what they do for us.

Mr. BROOKS. That is only in the States where they have pure-food laws?

Doctor WILEY. Yes; only in the States where they have pure-food laws.

The CHAIRMAN. How many of the States have them?

Doctor WILEY. Almost every one.

Mr. BROOKS. One more question. Have you any data as to the comparative State pure-food laws? What I am getting at is this: Suppose one was interested in the enactment of new pure-food legislation. Is there anywhere where one can get a compilation of the State pure-food laws?

Doctor WILEY. We have made that already. We have it up to the 1st of July.

The CHAIRMAN. These standards would tend to make all the States alike?

Doctor WILEY. That would be the great work of the standards, and a large number of the States are introducing amendments to their laws substituting the definitions of adulterations in this law, so as to make it uniform. Only yesterday there was introduced in the legislature of Indiana a bill to that effect. A bill is drawn and is ready to go into the legislature of Illinois to that effect. Vermont has already adopted our definitions. A number of Western States have adopted them. The legislature of Louisiana and the legislature of Georgia have adopted them. You see it is going all over. There is a universal movement toward uniformity of law and definitions. Now if we add to that the perfect uniformity of standards, we will have an end of all this confusion, which heretofore has been the cause of so much trouble to manufacturers where every State had a different definition and a different law and a different method of procedure; so that when a manufacturer had made his goods so that they suited one State and sent them into another State they would be illegal.

That will all be done away with, and I think that in eight or ten years there will not be a State which will not have uniform laws with all the rest. Mr. Slayden, of Texas, sent his secretary to me yesterday and said: "Let me have a draft of a law," and I sent him a copy of one that had been introduced in Indiana just the day before.

Mr. BROOKS. Would you let me have that?

Doctor WILEY. I would be very pleased to. Texas has no law, and is starting to adopt these definitions.

Mr. LAFEAN. Has Pennsylvania done anything in the way of the adoption of a pure-food law?

Doctor WILEY. Yes; and its definitions are word for word those of our law. We do not care about the methods of enforcement, but the definitions should be uniform everywhere.

Mr. COLE. How about the law of Ohio; does it differ from the national law?

Doctor WILEY. It is quite different. It was enacted years ago; but I hope that the legislature of Ohio will take steps early to change that law and make it uniform with the national act.

Mr. DAVIS. Some years ago the State of Minnesota had some difficulty about the pure-food law. Do you know what that difficulty is?



Doctor WILEY. I know a good deal about it. Mr. Slater up there is bringing everything into harmony with our law. By the way, Iowa has adopted our law by legislative enactment. New York City has adopted it, and so has Kansas City.

Mr. HAUGEN. How did Iowa get that law?

Doctor WILEY. They have made a new one. That is, they have not changed the methods of enforcing the law, but they have changed the definitions.

Mr. HAUGEN. By an act of the legislature?

Doctor WILEY. Yes; I think so. Now, we want a large part of this money for the States. We think we would like to spend an average of \$10,000 in each State, of this sum. The Secretary and I talked it over, and we think that would be a pretty fair start. Some of the States will not require that much, but some will, and quite a number of them will want more, and we think an average or \$10,000 will be right, making \$460,000, the sum that we ask for.

The CHAIRMAN. Take a State as an example, and tell us how you propose to organize it; take any State that you have in your own mind.

Doctor WILEY. Let me take the State of Indiana, which is the one that I am best acquainted with, being a native of that State.

The CHAIRMAN. Very well.

Doctor WILEY. Our idea would be to have Mr. Barnard, the chief chemist in Indiana, take this examination. He is perfectly competent to do this, and we would like to have anybody else who is an executive officer who would like to have it take the examination.

The CHAIRMAN. Who is Mr. Barnard?

Doctor WILEY. He is the State chemist of Indiana and does the work in the execution of the State law. Let him qualify, and then we will pay him \$8 or \$10 a day for the time that he works for us; we will arrange with the State authorities to let him do so. We say to Mr. Barnard, "Here is a case that we want you to examine. You make this examination for us." He will work three or four days for us, and then he will send in a monthly bill stating the time that he has worked. In that way I expect to get in touch with every State.

The CHAIRMAN. You think it would be preferable to pay him by the day for the work done, or a stated salary by the year?

Doctor WILEY. No; by the day. We could not pay a stated salary for the year unless we took his whole time.

The CHAIRMAN. How much would you pay him?

Doctor WILEY. I would pay a man like Barnard \$10 a day.

The CHAIRMAN. For the entire day?

Doctor WILEY. The entire day. He would make a statement of the number of days that he worked. He is a man of high character. Some others I would pay \$5 or \$6. If I could get a man like Winton, of Connecticut, I would be willing to pay him \$20 a day, and he would earn every cent of it.

We have asked, also, for an examination of inspectors. We want to put at least one man on our roll permanently from each State. Two from some States, but we want at least one. We want that man to be a wide-awake business man. The call for the examination says that he is not required to be a chemist or a lawyer. A man who has been a salesman or a dealer would be useful. We have fixed the age

limit at 40 years. We do not want any of the old chaps in that work, because those men will be on the road.

The CHAIRMAN. Those are among the most important positions that you have to fill?

Doctor WILEY. Yes; and we want to be careful about these examinations.

The CHAIRMAN. What kind of an examination do you propose to have that man pass?

Doctor WILEY. We propose to have him pass an examination showing that he is a good English scholar. He has to pass an examination that would fit him for a clerkship, to begin with, and then he has to make a statement of his experience in handling foods and drugs, and to give his references, and we count that as half of the examination and the written part as the other.

The CHAIRMAN. It ought to count three-quarters.

Doctor WILEY. Yes; but the civil service has its own ideas about that, and we have to yield.

Mr. LAMB. How would a man of the style of the one I carried up to you the other morning do?

Doctor WILEY. A first-class man. A keen, wide-awake man, and fit for that purpose. Why do you not have him take the examination?

Mr. CROMER. How much do you propose to pay these men?

Doctor WILEY. Two thousand dollars for the higher grades, and the lower grades in the service to be paid accordingly, and expenses.

Mr. CROMER. How much do you estimate it will cost?

Doctor WILEY. About \$5,000 a year for each man.

The CHAIRMAN. They ought to be the highest type of men you can get.

Doctor WILEY. Yes; we are going to try to get the best men. The ideal man is a keen salesman. Those men must know where to look for these adulterated and misbranded goods and where to find them. We must have the evidence of these cases, and they must get it. We have got to prove that this man made those goods and that they were shipped by him, and identify them right at the start. We finally find a man whom we know is violating this law. We put that inspector on his track and we say: "You trace these goods."

The CHAIRMAN. How much does a post-office inspector get?

Doctor WILEY. I do not know.

Mr. CROMER. They get a per diem?

The CHAIRMAN. No; they get a salary.

Mr. CROMER. They get a salary and then a per diem allowance of \$4 a day. They get from \$1,400 to \$1,800 and \$2,000. They are graded.

Doctor WILEY. Now, we have suggested that it would be proper to appoint to each State men who are citizens of that State for inspectors. I do not know whether we can do that or not, but we want to do it. For New York we want a New York man, and for Pennsylvania we want a Pennsylvania man, if it is legal. That is the question.

The CHAIRMAN. You are going to have some difficulty in getting the right kind of men for those positions.

Doctor WILEY. We are not going to appoint a man unless we are sure he is the right kind of a man, and from the references that we

get as to his character we will establish that he is an honest and reliable man.

Mr. DAVIS. Who are these men you are speaking of?

Doctor WILEY. The food and drug inspectors.

Mr. LAMB. The Congressmen can select them for you.

Doctor WILEY. The civil service would say "nay." The Congressmen ought to select the men to take the examination. That is what I mean. If we could get an inspector such as Doctor Warren has in Pennsylvania, that would be ideal. He has never lost a case on an unidentified sample.

Mr. DAVIS. Do you not think that the Congressman as a rule knows and is better qualified to judge of the honesty, integrity, and business character of a man than the Civil Service Commission through a civil-service examination?

Mr. COCKS. If I was counsel, I would object to that question.

Doctor WILEY. I am and always have been an ardent civil-service reformer, and I do not like to answer that question. I will say that under the civil service as a rule we get better material than under the old system.

The CHAIRMAN. What do you propose to pay these inspectors?

Doctor WILEY. I think for the highest grade \$2,000, and for the lower grades in the service just the way it is worded, so that we can pay a first-class man \$2,000.

Mr. HAUGEN. And his actual expenses?

Doctor WILEY. Yes; and actual expenses; not a per diem, but actual expenses. We estimate that all this is going to cost us about \$250,000 a year.

Mr. CROMER. That is a little higher than the inspectors sent out by the other Departments.

Doctor WILEY. We want a very much higher grade of inspectors if we can get them, because our whole superstructure must rest on that substratum.

The CHAIRMAN. The salaries of the post-office inspectors run from \$1,200 to \$3,000.

Doctor WILEY. Our one inspector in charge is the \$3,000 man.

Mr. COLE. Do you expect to adhere strictly to the age limit of 40 years?

Doctor WILEY. No, sir; there may be cases where it is advisable to waive that point.

Mr. CROMER. You will not confine it, then, to that age?

Doctor WILEY. No; but the civil-service rules may.

Mr. DAVIS. Do you think that you can fix that with the Civil Service Commission so that they will waive that?

Doctor WILEY. Yes. The Secretary has taken it up with them, and they may change that wording and make a higher limit; but we want to get young men for this work.

Mr. COLE. When will these examinations be held?

Doctor WILEY. They will be held right away; just as soon as the legal limit of the notice expires.

Mr. CROMER. We have not received the notice yet.

Doctor WILEY. It has been published.

Mr. CROMER. I do not think that I have received the notice.

Doctor WILEY. I got the notice yesterday—the printed notice.

The CHAIRMAN. Let us get back to the bill. You have estimated for that \$250,000.

Doctor WILEY. Yes.

The CHAIRMAN. That is for the chief inspector and for all the force in all the States?

Doctor WILEY. Yes. That brings the total up to about \$600,000 or a little over.

The CHAIRMAN. Take the State of Indiana, how many inspectors would you appoint for that State?

Doctor WILEY. Only one, and two or three for New York. New York City would have to have one alone, and there would have to be at least two outside New York City, in the State. That would make three for New York.

The CHAIRMAN. How many would you appoint in Ohio?

Doctor WILEY. Probably two.

The CHAIRMAN. At Cincinnati and Cleveland?

Doctor WILEY. For Delaware and Maryland, one.

The CHAIRMAN. For the two States?

Doctor WILEY. For the two States.

The CHAIRMAN. For Rhode Island and Connecticut?

Doctor WILEY. One; and one for Massachusetts, and probably one for Maine, on account of its large area.

The CHAIRMAN. There is not much manufacture of canned goods in Maine, is there?

Doctor WILEY. There is a lot of it. There is one duty of those inspectors that I forgot to speak about, and it is very important. The law provides that no filthy, putrid, or decomposed animal or vegetable substance shall enter into the composition of foods, and now we propose to send these inspectors without notice to the big factories and see the character of the raw material they are using. That will be one of their principal duties.

The CHAIRMAN. Will you examine under that law the apple evaporators?

Doctor WILEY. Yes; and see what they do with their cores and skins. This inspector is to examine soup factories. He is to see that the chickens are not so old as to have been bred by Noah. That is one of the important duties of those inspectors. We have had one man working as a special agent on that this summer, just to try how the thing would work. He has inspected 45 or 50 factories, and we have gotten a lot of most interesting and useful information.

The CHAIRMAN. Did you find the conditions bad?

Doctor WILEY. Sometimes bad and sometimes excellent, and then again in all intermediate ways.

The CHAIRMAN. What percentage is bad?

Doctor WILEY. 5 or 10 per cent, maybe, and from 25 to 30 per cent excellent, and the others intermediate grades. But the knowledge that such a man is going to drop in on these people at any time without notice will do a wonderful work in bringing up the general scale.

The CHAIRMAN. I have always contended that a knowledge of the law is all the power that you needed. That is what I have claimed from the beginning.

Mr. SCOTT. I presume this man is instructed, or at least is authorized, when he finds a factory below grade to inform the proprietors of that fact?

Doctor WILEY. Yes; to inform the Secretary, and the Secretary will say to the proprietors, "If you do not clean up I will not let your goods go into interstate commerce."

The CHAIRMAN. Have you a sanitary clause in your bill, as we have in the meat-inspection law?

Doctor WILEY. Yes; absolutely. He will say to them, "You clean up your establishment, or I will put the ban on every part of your goods that goes out of your establishment for interstate commerce," which he can do. Take gelatin. That is most important. Have you any idea how the gelatin that you eat is made?

The CHAIRMAN. No.

Doctor WILEY. We have found out.

The CHAIRMAN. It is made of skins and bones.

Doctor WILEY. Yes; and it is made out of the hides—out of the scrapings off of the hides. These hides go into the tanner's vats, and these hides that smell to heaven are treated and trimmed, and these trimmings are used to make gelatin. The Marine-Hospital Service found tetanus germs in gelatin.

The CHAIRMAN. What kind of factories are they?

Doctor WILEY. The dirtiest in the world. They treat those hides with alkali, rub it into the hides for shipment, and then they are scraped and trimmed, and then they put the hides into the tanner's vats and use the residue for gelatin. They make this gelatin sometimes in glue factories. What is not fit for glue is made into gelatin.

Mr. LAFEAN. You say what is not fit for glue is made into gelatin?

Doctor WILEY. Yes, sir; what is not strong enough for glue they make into gelatin.

Mr. HAUGEN. What is it used for?

Doctor WILEY. It is used for putting into ice cream and putting into candies and for making capsules that you take your medicine in. There is no objection to gelatin if it is properly made, and it is good and wholesome, and there is plenty of wholesome raw material to make it of.

Mr. HENRY. It is made of hoofs?

Doctor WILEY. It is made of hoofs and horns and bones. There is no objection to making it of bones, if they are fresh.

Mr. SCOTT. I presume that the product that you speak of as containing live germs of various kinds must constitute a very inconsiderable proportion on the market.

Doctor WILEY. No one wants to run the risk of getting lockjaw by taking a powder or a pill or eating ice cream.

Mr. SCOTT. That must be the cause of so many children being made sick by eating Sunday school ice cream.

Doctor WILEY. Ice cream! It is the most wonderful thing in the world—this ice-cream proposition. About three months ago, when the schools first opened, these hoky-poky men were pushing their carts around, and at the noon recess there was one of them came up on the street across from my office and I sent out and bought two blocks of this ice cream, a yellow one and a green one. Of course both were poisonous with coal-tar dyes. There was not much cream in them. We examined those two bricks, and one had 12,000,000

germs per cubic centimeter and the other had 13,000,000 per cubic centimeter.

Mr. COCKS. How many germs would there be in a good ice cream?

Doctor WILEY. Not over ten or twenty thousand per cubic centimeter.

Mr. COCKS. What kind of germs did you find in this hoky-poky?

Doctor WILEY. We found the colon bacillus, which is allied to typhoid bacillus. When you find the colon bacillus, you always may expect the typhoid bacillus with it. And there are ice cream factories not 1,000 miles from here which if you should go into you would never eat any more ice cream as long as you live.

Mr. COCKS. Do you eat ice cream, yourself?

Doctor WILEY. Yes; but we make it for the boys over there out of pure cream.

Mr. FIELD. You say there are about 20,000 germs per cubic centimeter in the best of it?

Doctor WILEY. In the best that is made there would be about 20,000 or less per cubic centimeter.

Mr. FIELD. Is not that enough to kill?

Doctor WILEY. Oh, they are perfectly harmless, those germs. It is only when you get this terrible infection that it does any harm. The sterilization of milk is a great mistake, if it is pure, because these natural germs aid digestion. But when you get 12,000,000 of them they do not all come from the milk.

The CHAIRMAN. How about this inspector? What would he do?

Doctor WILEY. I would have him do all the time just what this man has been doing within this past year. I would have him go from factory to factory where they are making food products. When Barnard or any of the other food officials notified him that they had found food coming from a certain State that was not all right, I would have him go there and follow it up.

The CHAIRMAN. To another State?

Doctor WILEY. Yes; I would not confine him to one State.

The CHAIRMAN. You would not communicate that fact to the inspector of that State?

Doctor WILEY. Yes; I would have them meet there and collaborate. I would want the inspector from that State to go, because the suit must be brought and the trial must be had there, and he probably would be wanted to give evidence, and I would trace the package across the State line and find where this sample originated and take that package to the place. We might find it all wrong, but otherwise without this investigation we could not identify it.

The CHAIRMAN. What else would he do?

Doctor WILEY. In addition to that—in addition to the inspection of the factories and the tracing of packages—he would exercise a general supervision. I do not know that there is anything else he could do except those two things.

The CHAIRMAN. He would be simply on the road all the time, inspecting factories?

Doctor WILEY. Yes; on the road and busy all the time. We will keep him busy. He will have plenty to do, as you will easily see when you think of all the vast interests involved.

The CHAIRMAN. He will have about a year of this work, and then things will be a great deal better?

Doctor WILEY. I do not know. I think there will be a great improvement. I agree with you.

The CHAIRMAN. All I want to avoid in this is what you might call the overmanning of this Bureau, because I think in a year or two things will improve very much. As a commercial proposition men will not take the chances—they will not continue abuses and violations of the law.

Doctor WILEY. In that case we can diminish the force.

The CHAIRMAN. The whole thing is a business proposition, eliminating these practices and improving the morals of the community.

Doctor WILEY. Yes. There is \$150,000 now that I have not accounted for. We will have to have some increase of our chemical force to man these laboratories that I have been speaking of.

Mr. BROOKS. And new clerks?

Doctor WILEY. And new clerks. I count 50 or 60 men for these new laboratories, and each laboratory will have to have a clerk. They can not get along without it, and they will have to be equipped. In most cases we have no rent to pay. We get a Government building or a State building. In Minnesota they have offered us a large part of the old statehouse, right opposite the State laboratory.

Mr. BROOKS. What is that clerk to do?

Doctor WILEY. He has reports to write very day. Every chemist has to report every day.

The CHAIRMAN. Could he not write his own reports?

Doctor WILEY. He could not. He could not do any chemical work if he did.

The CHAIRMAN. He would have to take the time to dictate them to his clerk.

Doctor WILEY. Yes. Now, making out the blanks, and so forth, takes a man all his time, and in New York City it takes three clerks to do it. We are going to have 30 chemists there. We have 10 now, and we have new rooms there three times as large as we have now, and we are fitting them up so as to control that vast body of trade in that city. We will have but very few men here in Washington in addition to those we have, probably a dozen—that is, chemists. These items will take up \$100,000.

Now, \$50,000 we have estimated for the services of experts. We have employed one expert. That is the first employment we have made under this bill. There is question, and very serious question, about the classification of phenacetin as a derivative of acetanilid. If phenacetin is so derived, it has got to be labeled on every package as it is found.

The makers have protested that it is not a derivative of acetanilid, and they employed eminent chemists who testified to that, and it became necessary for us to employ eminent chemists, and we went to the University of Chicago and employed Doctor Nef, one of the most eminent chemists in this country. We think we are right, but we need the most eminent authority. We went to Doctor Nef, and he said "Yes; I will do it for \$500." So I have drawn up an authority of that, so that he may advise the Secretary on this matter of phenacetin.

The CHAIRMAN. Do you consider that phenacetin is more or less dangerous than acetanilid?

Doctor WILEY. It is a little less dangerous, but it has the same depressant effect. I saw this morning an account of somebody in Cumberland, Md., having taken a dose of it, and it killed him. He had a headache and he took the powder, and he died from it. Captain Lamb had a constituent in my office yesterday on this very question.

Now, this is something that we have to regulate, and we want to get right on it. We will have a lot of this work of just that character, and we want the best men that we can get. We can not tell how much that will cost, but we want \$50,000 at least for those extra emergencies. Now, I have tried to tell you what the Secretary and I have agreed upon as the best way of getting at it. There is an immense amount of detail that I could not give you. We are going to avoid all overmanning and avoid all annoyance to trade and give every man a show for his white alley. If we find a man wrong, we will call him up and give him a fatherly talk and spank and let him go, and if he will not go right we will have to put the law on him.

The CHAIRMAN. Now, you have no increase except this \$750,000 in the lump-sum provision.

Doctor WILEY. That is for the law. We do not ask for any increase for our Bureau. If you will give us the same as you did last year we will be all right. I am not saying much about the general work because I have gone over it so often before this committee, but it is growing. The work of all the Departments is growing. Our investigations, which are very important to agriculture, are growing. If you give us the same as you did last year we will not ask for a penny more.

Mr. SCOTT. Have you any lawsuits growing out of the law as yet?

Doctor WILEY. No, sir; we have no inspectors and no way to bring a lawsuit.

Mr. CROMER. You have had one man out?

Doctor WILEY. Yes; but that was simply to see what we could do. It was experimental.

Mr. CROMER. To see if you could find anything?

Doctor WILEY. To see what we would do with an inspector. We wanted to make a trial.

Mr. SCOTT. The law went into effect on the 1st of January?

Doctor WILEY. Yes; on the 1st of January.

Mr. COCKS. Do you have anything to do with the subject of fertilizers?

Doctor WILEY. No, sir; we have a lot of fertilizer work referred to us from the State authorities, and sometimes the merchants get into a dispute and refer to us.

Mr. COCKS. How about the Department here? They have nothing to do with that, the Department of Agriculture?

Doctor WILEY. No, sir; nothing.

Mr. COCKS. I would like to ask you if you think there is any necessity for an amendment to the interstate law relative to fertilizers, to comply with the State laws on the same lines that you have been talking about now. You know the States have laws regarding the branding of fertilizers.

Doctor WILEY. That matter has been discussed a great deal in our Association of Official Agricultural Chemists, and I have been chairman of the committee on legislation of that association for



ten years, and we have had that question up all the time, and we have conferred with the manufacturers, and they have now appointed a committee, and we have voted that at the next session of that association, which will be this year, in the fall, we shall bring a draft of a measure to aid the States in their control of fertilizers, but we did not want to do it while this other legislation was pending. We did not want to complicate matters, and we wanted to have the State authorities agree to it and all the manufacturers agree to it. That is our object.

Mr. COCKS. I was going to introduce a bill, because it is very important to the States.

Doctor WILEY. It would do no harm to introduce a bill.

The CHAIRMAN. The idea is to have uniformity.

Mr. COCKS. We can handle it in New York City, but we can not handle it until it gets in there.

Doctor WILEY. Every fertilizer manufacturer in this country now has got to have 46 different kinds of brands—one for Virginia, and another for West Virginia, and another for Maryland, and so on for every State—and it is a regular museum to go in there and see the labels that they have to keep, and all for the same kind of fertilizer.

Mr. CROMER. You have not elaborated on the question of whiskies yet this morning.

Doctor WILEY. I will say just two words in answer to the gentleman from Indiana. The question of whiskies is very important just now. The Secretary ruled that a mixture of neutral spirits and whisky is not a blended whisky, but that it is a mixture or blend of spirits and whisky.

The CHAIRMAN. Neutral spirits is not whisky?

Doctor WILEY. No, sir. It has no color.

Mr. LAFEAN. How about high wines?

Doctor WILEY. "High wines" is different. This is a trade name for distilled spirits of a strength greater than proof. If you dilute high wines, which contain all the constituents of whisky, it becomes whisky. If you pass high wines through charcoal to deodorize the product, and then through a column which takes out all the characteristics of whisky and leaves only neutral ethyl alcohol, you have pure, or Cologne, spirits. But the pure spirit has none of those qualities which you find in whisky. They are all taken out. The straight distillers agree with the Secretary on his decision, and all the blenders disagree with him.

Mr. HENRY. How does Mr. Hough stand on this?

Doctor WILEY. Mr. Hough is slightly opposed to the Secretary's ruling. The Secretary has gone into this matter personally of late. I have gone with him through Indiana and Illinois; we have gone to the places where they make these spirits and whiskies. We went to Terre Haute and visited the great distilleries there, also to Peoria, and around Pittsburg.

Mr. CROMER. What per cent of the whiskies are pure?

Doctor WILEY. In this country?

Mr. CROMER. Yes.

Doctor WILEY. As sold over the bar?

Mr. CROMER. Yes.

Doctor WILEY. None. I even find that the famous bottled in bond

is adulterated. The saloon keeper buys one case of it, and then fills it up from his demijohn in the cellar.

Mr. COCKS. You still claim the bottled-in-bond whisky is pure whisky?

Doctor WILEY. Yes; it is nothing but whisky when not tampered with.

Mr. COCKS. What is the adulterated whisky that is sold as pure whisky?

Doctor WILEY. Mostly neutral alcohol.

Mr. COCKS. What is your definition of whisky?

Doctor WILEY. It is a distillate from the fermented mash of malt, or of cereals, the starch of which has been hydrolyzed by malt, and it contains all the congeneric products formed with ethyl alcohol during the fermentation that are volatile at the ordinary temperatures of distillation.

Mr. COCKS. We are under great obligations to you, Doctor.

Doctor WILEY. Gentlemen, I am very glad that I have satisfied you.

The CHAIRMAN. I think that every bottle of it ought to be so labeled.

Mr. DAVIS. The definition of the Doctor is so simple concerning straight whisky that I would like to know his definition of a blended whisky.

Doctor WILEY. Blended is not the antithesis of straight. "Crooked" is the term you mean. If one is straight, the other is crooked. Crooked whisky is not whisky at all, but is made of neutral spirits, and flavored and colored. It is an imitation. It has none of those aromatic and flavoring congeneric products which are volatile at the ordinary temperature of distillation. I think that pure spirits is a poison, pure and simple. It coagulates the protoplasm in the cells.

The CHAIRMAN. You mean pure spirits?

Doctor WILEY. Yes; alcohol. As long as any man can keep his cells limpid and keep his protoplasm limpid he will never grow old.

Alcohol absolutely coagulates protoplasm the moment it touches it, but the alcohol that is in a whisky or brandy or rum is so mingled by nature's operations that it is an entirely different proposition. For instance, you take ordinary field corn and put sugar on it, more than sweet corn has, and it does not taste like sweet corn. It is not sweet corn. Nature has a way of combining the elements in foods which man can not imitate, and therefore when nature produces 20 different substances, as she does every time a whisky is fermented, and all 20 of them come over in the still, alcohol among them, then you put these natural elements away to become mellow, to marry (as the distiller says), which takes years to accomplish—it is a long-drawn-out ceremony—and you make a beverage which is tonic and wholesome and healthful and nonpoisonous; and there is all the difference in the world between a drink of straight alcohol and a drink of whisky, brandy, or rum.

I made an experiment which was more convincing than I had expected. I took a 12-year-old whisky that was mellow and rich and fragrant and I put it in a still and distilled half of it over, and I was careful to lose nothing, and I poured it back in the bottle, and I had chemically the same thing as before I redistilled it, and that whisky was not fit to drink. A divorce had taken place, and it would take

another twelve years to make another marriage. You can make alcohol from whisky by separating from it these bodies other than alcohol.

Mr. HAUGEN. What do you call those other substances?

Doctor WILEY. They are propyl, butyl, and ornyl alcohol ethers, and ethers of many kinds, and different kinds of aldehydes and acids and furfural. Do you want me to name all of them?

Mr. HAUGEN. No, no.

Mr. SCOTT. Can you tell us what is the relative cost of producing pure whisky and alcohol?

Doctor WILEY. Yes; you can get it in any trade circular for the whisky which is just as it comes from the still. For instance, at Pittsburg the raw whiskies are selling at 47 cents a gallon, tax unpaid, and the spirits at 19 cents, tax unpaid.

Mr. SCOTT. The cost of the alcohol is less than half that of the whisky?

Doctor WILEY. Yes; the cost of the alcohol is less than half that of the good whisky.

Mr. SCOTT. Are any of these whiskies pure when they are sold from the still?

Doctor WILEY. The raw whiskies?

Mr. SCOTT. Before the change takes place, when they are sold.

Doctor WILEY. The raw whiskies are not fit to drink; they are not married. It takes them at least four years, and better eight years, in wood. And meanwhile leakage and storage increase the expense, and at the end of eight years that whisky is worth many times over what it was when it was first distilled. On the other hand, spirits are never so good as the day they are made. The minute you put spirits in a barrel they begin to degenerate.

Nearly all the whisky is sold as soon as it is made, often before. It is sold to the people who handle it, the jobbers. The distiller very rarely owns his whisky.

Mr. SCOTT. And they are the ones who adulterate it?

Doctor WILEY. No, sir; the rectifiers are the ones who adulterate. The law puts a premium on adulteration. I am not criticising you gentlemen, because neither of you was in Congress when that law was passed; but that is what it is—the rectifying law is a premium on adulteration. The law says that anybody who keeps a still or leach tub shall be considered a rectifier, and that any man who without rectifying mixes distilled spirits with any other substance to make a spurious imitation of whisky, rum, brandy, or other compound shall be considered a rectifier, and that he must carry on his business at least 600 feet from any distillery.

It is under that broad law that all this adulteration is done. Uncle Sam pays every year \$500,000 to see that they do not smuggle any spirits in or out of those establishments, and he gives them free of charge the stamps to put on the product, and all the salaries of the inspectors, and everything; \$500,000 a year are paid by the Government. And a man that puts a stamp on a straight whisky not only pays the tax, but pays for the stamp besides.

It costs 90 cents a barrel to bottle the straight whisky in bond. It costs the rectifier, the adulterator, nothing to do the same thing under the same supervision. And Mr. Yerkes has recommended that you put a tax of 20 cents on the stamp, 20 cents a barrel, against this so-

called whisky—make it a dollar when you put it in—for the stamps, and thus put them on the same footing.

Mr. COCKS. How does that happen; has there been a change in the law?

Doctor WILEY. No; the law in 1868, whenever it was passed, was made so then, and it has not been changed much since, except to increase the period whisky may remain in bond. It was made so because at that time the amount of rectification and mixing that went on were not very great. Everything was whisky. But now it is all rectification and no whisky.

Mr. SCOTT. I think it will interest the committee, if you can do it with reasonable brevity, if you would describe the process by which whisky is made.

Doctor WILEY. I brought that along. I have written a bulletin on that—Bulletin 102, Bureau of Chemistry.

Mr. SCOTT. It is all in that?

Doctor WILEY. Yes; and in my farmers' bulletin on denatured alcohol we give the process of making alcohol. (Farmers' Bulletins, Nos.—.)

Mr. SCOTT. Up to a certain point the processes of making alcohol and whisky are the same?

Doctor WILEY. No; they differ in the start. In the first place, the spirit makers buy the lowest grade of corn they can get (No. 3, I believe) to make spirits of, and when you go to make whisky you buy the highest grade of corn and rye in the market. So that they differ at the start. The whisky manufacturer mashes it in an open tub at a low temperature, 140° to 180° F., and the spirit maker puts it into a boiler and heats it to 340°. The separation of the alcohol from the beer is usually the same in both cases. It is usually done in a three-chambered still, and thus they get the low wines.

Alcohol has about the same relation to whisky that pure starch has to meal or to flour—just about—or as distilled water to a mineral water. Everything is taken out of the flour except the starch. All the other valuable ingredients are gone. Everything is taken out of the whisky except the ethyl alcohol. All the other valuable elements are gone. You can never convert starch into flour, and you can never convert neutral spirits into whisky by any process.

Mr. SCOTT. Not by this marriage process that you have described?

Doctor WILEY. No, sir. In marriage you must have two parties. Now, you can not marry ethyl alcohol to anybody else. You must have some man to marry ethyl. You can not marry a girl unless you get a man to marry her.

Mr. FIELD. Doctor, when you see a man drunk can you tell what kind of whisky he got drunk on?

Doctor WILEY. My experience of drunken men is very limited, but I have the evidence of experts which shows beyond question that when a man gets drunk on spirits he is crazy drunk and when he gets drunk on whisky he is a jolly good fellow. I think we have indisputable evidence of that.

Mr. FIELD. Does not that depend on the temperament of the individual?

Doctor WILEY. It may, because I suppose a real gentleman would not drink spirits.

Mr. SCOTT. How can you help it?

Doctor WILEY. There is only one way to help it, and that is to live in a prohibition State.

Mr. SCOTT. Now you have stated the truth.

Mr. HAUGEN. What can you tell us about denatured alcohol?

Doctor WILEY. I can tell you a good deal about it. It is a great thing, but it is not the great blessing that some people have been led to expect, and that is the reason I wrote those two bulletins. Some people had the idea that the only thing you needed under this denatured-alcohol bill was to have a little still in your back yard, and that anybody could make this. It requires just as much art to make denatured alcohol as to make whisky; but you do not have to take out all these last traces. It is made with the same kind of a column as they use in making spirits, except that you do not have to carry it so far. You can make denatured alcohol out of anything that has starch and sugar in it. You can make it out of sawdust.

The CHAIRMAN. That is wood alcohol?

Doctor WILEY. No, sir. You convert the sawdust into sugar by hydrolysis with an acid.

The CHAIRMAN. You said sawdust, and I thought it might be wood alcohol.

Doctor WILEY. No. You can make it out of molasses or cane, or any old stuff. We sent out a man to Hoopeston, Ill., and he found that you could get an excellent alcohol out of the refuse of a corn canning factory.

The CHAIRMAN. What refuse was that?

Doctor WILEY. The refuse from Indian corn.

The CHAIRMAN. What refuse?

Doctor WILEY. The cobs and scrapings and ears that they threw away as being tainted or too ripe.

The CHAIRMAN. You could turn all that into ensilage.

Doctor WILEY. Yes; it makes good ensilage, but it makes good alcohol, too.

Mr. SCOTT. Is not the waste of beet sugar factories valuable for this?

Doctor WILEY. Yes; the molasses, not the pulp. Beets have very little waste matter in them, but you take the molasses, which is totally inedible—nobody can eat beet-sugar molasses—and you can make alcohol out of that. It is almost the sole source of alcohol in France.

Mr. SCOTT. Is it not true that the refuse of the beet itself will make alcohol?

Doctor WILEY. No, sir; because you have taken out all the fermented matter. There is very little left. I think the denatured alcohol is going to be a great blessing to this country, but it is going to be a slow one.

Mr. SCOTT. In what way?

Doctor WILEY. It is going to make a cheap fuel for a lamp, for a chafing dish, and in remote localities for making a fire to warm the house, and it can be used to drive your motor and to drive farm machines.

Mr. LAMB. Do you think it would be proper to allow them to make ether out of denatured alcohol?

Doctor WILEY. Yes; I asked them to include ether and chloroform, but they would not do it.

Mr. LAMB. They make ether out of alcohol, you know?

Doctor WILEY. Yes; I understand it.

Mr. HASKINS. What is the relative cost of denatured alcohol and gasoline?

Doctor WILEY. Denatured alcohol, made from the materials from which alcohol is made to-day, will cost about 39 cents a gallon of the proper strength. Gasoline is worth about 22 cents a gallon, but gasoline is going up all the time and alcohol will be coming down all the time, and they will meet eventually.

Mr. HASKINS. That is made out of corn?

Doctor WILEY. You can make it out of any starch or sugar refuse, and, I believe, in the course of five or six years the cost of alcohol will come down to 30 cents, but the cost of gasoline will then be up to 30 cents. Then, again, alcohol is much more pleasant and safe to use than gasoline.

Mr. HASKINS. About what is the cost of constructing an alcohol plant of the size used commercially?

Doctor WILEY. I should say that you would not want to erect a plant that would make less than 500 gallons a day. It would cost about \$5,000 to \$8,000 to put up a plant of that sort, but larger plants proportionately less—very much less.

Mr. HAUGEN. Is that for the building?

Doctor WILEY. The building and an ordinary still and fermenting plant, and things of that kind.

Mr. SCOTT. Would it be practicable for the farmer to build one at a reasonable cost, with the sole idea of making his own product?

Doctor WILEY. I think a company of farmers would find it profitable to have a joint still.

Mr. HAUGEN. And run it on the cooperative plan?

Doctor WILEY. Yes.

Mr. BROOKS. I have been told that alcohol could be made out of potatoes very advantageously.

Doctor WILEY. So it can, but it costs more than corn.

Mr. BROOKS. The potato content is worth more for other purposes than for alcohol?

Doctor WILEY. The potato has only 20 per cent of starch, while Indian corn has 70 per cent of starch. That is a big difference to start with; and at its present price for consumption as food the potato could not be used for making alcohol.

Mr. LAFEAN. You said denatured alcohol was worth about 39 cents?

Doctor WILEY. Yes.

Mr. LAFEAN. And gasoline 22 cents a gallon?

Doctor WILEY. Yes.

Mr. LAFEAN. What would be the relative value in heat units?

Doctor WILEY. Gasoline has about 11,000 calories, whereas alcohol has about 7,500 calories. But for illumination it is as good as gasoline, for burning in a lamp.

Mr. BROOKS. How about power?

Doctor WILEY. You can use it with almost equal advantage for power because you can compress the alcohol vapor much more than you can gasoline vapor without danger. Compressing the vapor of

alcohol to twice the density to which you compress the vapor of gasoline, you will get about the same power, pound for pound.

Mr. HAUGEN. Returning to this State work, would it not be as well to pay the State a lump sum as to pay these salaries to these different men, and would not the method you suggest lead up to abuses in the way of salaries?

Doctor WILEY. I think it is far better to pay for the work and have it done under the supervision of the Secretary of Agriculture.

Mr. HAUGEN. Could it not be arranged to have it so? I want it under the supervision of the Secretary of Agriculture, but the double salary is what I object to, these men being paid a salary by the State and also by the Government.

Doctor WILEY. There might be abuses, but we should not do that except openly, and with the consent of the State authorities. We can arrange that. We have not decided on that plan definitely and permanently.

At 1.30 o'clock p. m. the committee took a recess until 2.30 o'clock p. m.

#### AFTERNOON SESSION.

The committee reconvened at 2.45 o'clock p. m., Hon. James W. Wadsworth (chairman) in the chair.

#### **STATEMENT OF DR. B. A. RAMSAY, OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. I believe that you have had charge of this Texas cattle fever tick work, have you not?

Doctor RAMSAY. No; only temporary. For the last six weeks, since Doctor Steddom has been away.

The CHAIRMAN. The committee wants to know what work has been done under that appropriation, and with what success, and in your own way you can tell us.

Doctor RAMSAY. There has been a great deal of work done.

The CHAIRMAN. Tell us what the Department first did. How did you go to work to do it?

Doctor RAMSAY. The first step was to find out the laws that existed in the various States in regard to the handling of live stock and the way quarantines could be placed in the different States. Considerable trouble was found in that direction, for the reason that some of the States could not give the Federal Government any power in the State. Then we had men to go and make surveys of the country and make investigations to see where the fever tick existed to the greatest extent, and where it would be advisable to undertake work. As you know, the appropriation was not available until after June 30, and by the time they got started to work it was about the 1st of August. Since that time there has been over half a million of cattle inspected and a great many of them treated with crude petroleum oil, changed from pasture to pasture, with the result that at the present time about 50,000 square miles is released from the Texas fever quarantine that was formerly in it. An area about the size of the State of Virginia has been released as the result of the work since the 1st of August. Of course, that was a very short season.

The CHAIRMAN. In what part of the United States was that?

Doctor RAMSAY. That extended all the way along. Probably the largest amount of territory was in the State of California, and some in Oklahoma—not very much—and some in Texas and some in Kentucky and Tennessee and Virginia and North Carolina.

The CHAIRMAN. You pushed the quarantine line down a little?

Doctor RAMSAY. We pushed the quarantine line down a little all the way along, here and there, according as we could do the work.

Mr. LEVER. You did not do any work in South Carolina?

Doctor RAMSAY. We did some work there, but not to release any territory as yet.

The CHAIRMAN. Do you think you can release an isolated spot anywhere with safety?

Doctor RAMSAY. Yes, sir; there are certain pastures under fence, and we can cooperate with the men individually. But I was speaking of the regular national quarantine line across the country.

The CHAIRMAN. Do you think you could exempt a county, for instance, with any safety in the middle of Mississippi?

Doctor RAMSAY. Yes; but that comes under the State. The State comes in there. You see, the decision of the Supreme Court prevents us from interfering with their line.

The CHAIRMAN. Yes; I know.

Doctor RAMSAY. That is what the State has to do, and if they will do that we will allow them to come up, provided they are brought in cars that are clean and disinfected and stop at feeding yards and are well taken care of, and we will take care of them after they start.

Mr. BROOKS. How far does this quarantine line extend?

Doctor RAMSAY. You mean at any one point?

Mr. BROOKS. Yes.

Doctor RAMSAY. I suppose the highest point of the quarantine was in the State of Oklahoma. It ran up in Kentucky a good deal, but this year Kentucky will be released altogether.

Mr. BROOKS. This answers what I wanted to know. The California tract was an isolated tract from a separate source of infection?

Doctor RAMSAY. No, sir. Here is the California map here [indicating on map].

Mr. BROOKS. Yes.

Doctor RAMSAY. It is expected this year that by June 30 we will be able to put this line right down here [indicating] and release this whole thing [indicating].

Mr. BROOKS. Does the quarantine extend east into Arizona?

Doctor RAMSAY. Yes, sir; it extended into Arizona.

The CHAIRMAN. In California what did you release? Just show the committee.

Doctor RAMSAY. Here is California here [indicating on map]. This point running up here and on all that tinted blue down here [indicating] from our investigations, from the reports from the inspectors and the reports from the State men—they all show such a condition that we do not care to release it yet and put the line down. It might not be safe. But it is supposed that for the end of the fiscal year, June 30, this line could come right down here [indicating on map].

The CHAIRMAN. What is that red line there?

Doctor RAMSAY. That is the old quarantine line. This is the present line [indicating on map].



Mr. SCOTT. Where does this strike the west coast?

Doctor RAMSAY. It is right at the county line between San Luis Obispo and San Francisco and Monterey counties, right at the southwest line of Monterey.

Mr. SCOTT. Where is San Francisco?

Doctor RAMSAY. Right here [indicating].

The CHAIRMAN. What is the rest of that blue that you have there?

Doctor RAMSAY. That [indicating]—this checked blue—remains as it is. We have found so much infection here that we can not promise to let it out.

The CHAIRMAN. That is, toward the coast?

Doctor RAMSAY. Yes. We have found so much infection there that we can not promise to let it out, even with favorable conditions, in the spring. It is supposed that as we have done a lot of work here we can make these blue here [indicating on map] and let it out next year under favorable conditions of inspection. But this year it is proposed to get this red line here reduced down to here [indicating], and all these counties out [indicating], and next year this red, where we have done some work and cleaned the cattle up to some extent, we think could be made blue next year and put into what we call the provisional area.

Mr. SCOTT. The cattle which are in that blue-line area there are on the free, open range, are they?

Doctor RAMSAY. Some of them are on open range and some are in their pastures.

Mr. SCOTT. In a State where they are altogether on open range, before letting the quarantine line down any do you dip every individual head of stock that is in that territory?

Doctor RAMSAY. Yes; all that is on what we call open range.

Mr. SCOTT. Yes.

Doctor RAMSAY. And those which are clean and are kept under fence do not require to be dipped. But everything that is open—is liable to be exposed to other cattle and infected and are liable to become infected with ticks—are dipped, and then they are examined afterwards from time to time. We could not find any ticks on the cattle up here in that [indicating on map] last fall, and it is virtually clean now; but we do not care to lower the quarantine that much until they are examined next spring and we can see whether they are clean or not.

Mr. CANDLER. What is the treatment of the cattle that are affected?

Doctor RAMSAY. Some form of oil—crude petroleum has been used by the Bureau.

Mr. CANDLER. Has it been effective?

Doctor RAMSAY. Yes, sir; effective.

Mr. LEVER. Is that treatment expensive?

Doctor RAMSAY. No, sir. The freight and the cost of hauling it over an open range, an open country, for about 100 miles is the big expense. It is, I think, about 2 cents a gallon, and in some work we did with it in Montana for scab we paid \$116 for a carload of oil and \$136 for freight.

The CHAIRMAN. Tell us how the Department goes to work to clear a certain territory or to ascertain that it is clear and to arrive at the conclusion that it is clear; just the practical working.

Doctor RAMSAY. Maybe I had better read you Doctor Steddom's report on that.

The CHAIRMAN. Does it contain that?

Doctor RAMSAY. Yes, sir; it contains that. There is just a little of it here. It is all in the Secretary's report.

The CHAIRMAN. Yes; I read the Secretary's report, but that does not give the practical working. What bothers me is, with so much unfenced country, how you are going to hold it back, and how you are going to get it out and keep it out.

Doctor RAMSAY. When we let a piece of country out, we do not stop inspecting because we have released it, but we still keep inspecting out in the country that we have released. We do not desert this country here; and the State keeps going over it, and at any time they find a bunch of cattle infected they draw a quarantine line around it, and we sustain them in that by not allowing any cattle to get out of that area which they have quarantined until such time as they are thoroughly clean.

The CHAIRMAN. Are the States cooperating with you, in Tennessee and Virginia and North Carolina?

Doctor RAMSAY. Yes, sir; as well as their laws will allow. But in some of the States they will have to have their laws amended somewhat this winter, and they are all making the effort to have them amended this winter.

The CHAIRMAN. You see it is a case again of uniform laws.

Mr. CROMER. I would like to know something about the process of dipping.

The CHAIRMAN. Let Doctor Ramsay read this report first. I think the report will show it.

Doctor RAMSAY. This says that the conditions of the different sections are widely divergent. The conditions in Virginia and in California are very different. In the East we have little small bunches of cattle, and in the West we have the open range with a tremendous number of cattle.

The CHAIRMAN. You have a tremendous amount of infected territory here in the East?

Doctor RAMSAY. Yes; and that is the worst kind of territory to inspect and clean. The people have not the money invested in cattle in the Eastern States that they have in the West, and you can not get the cooperation. In the West they have all the money that they have invested in cattle, and they are generally in condition to take the matter up with their State men and get the laws that they want. If they want a law they get it. This report says:

In some States meetings were held at which the subject of tick eradication was discussed with farmers, stockmen, and other interested citizens. These meetings were intended to be largely educational, but they gave an opportunity to petition State authorities for relief and to express preference for local inspectors, thus developing an enthusiasm and interest that can only come from a close personal identification with an enterprise of this sort. In some places it was necessary to employ inspectors who could live in the saddle and wield a lasso like a cowboy. These men worked in groups of about a dozen, each group having a cook and a camping outfit. They covered their territory systematically, roping and examining cattle wherever found, and informing the owners of infested animals of the most practical method of getting rid of the ticks. It was found advisable to buy a carload of crude petroleum (in barrels) for use in the treatment of infested animals. This oil was distributed and used under the immediate supervision of inspectors of the Department in the south-

eastern States, and was doubtless the means of doing what could have been done in no other way, as the crude oil is difficult to obtain in small quantities and at points far distant from its production.

The following table shows by States the number of herds inspected :

*Results of inspection work to October 31, 1906.*

State.	Inspections.				Number of counties.
	Herds.	Cattle.			
		Free.	Infected.	Total.	
Alabama .....	780	4	5,550	5,554	2
Arkansas .....	1,527	6,671	2,332	9,003	2
California .....	1,015	67,517	58,889	126,406	11
Georgia .....	4,474	10,063	6,365	16,418	7
Kentucky <sup>a</sup> .....	4,077	13,653	7,332	20,985	4
Missouri .....	126	3,000	1,430	4,430	3
North Carolina .....					
Oklahoma .....	10,589	97,860	16,972	114,832	5
Tennessee <sup>b</sup> .....	6,317	23,204	15,840	39,044	17
Texas .....	410	86,682	99,175	185,857	17
Virginia .....					
Total .....	29,315	308,644	213,885	522,529	68

<sup>a</sup> In addition, in Kentucky 1,396 herds and 6,904 cattle were reinspected.

<sup>b</sup> In addition, in Tennessee 822 herds and 4,174 cattle were reinspected.

Below it says that 29,315 herds were inspected, and that these consisted of 522,529 cattle altogether. That is over half a million head.

The CHAIRMAN. Mostly in the West, in the California territory? How much of that is in the East?

Doctor RAMSAY. Here is Alabama with 780 herds, Arkansas with 1,527 herds.

The CHAIRMAN. What do you call a herd?

Doctor RAMSAY. That is all the cattle that a man has got. The cattle are recorded in that man's name and with his address.

The CHAIRMAN. If he has only one cow, you call that a herd?

Doctor RAMSAY. Yes; if he has only one cow. We show a great many more herds in the East, but not the same number of cattle.

Mr. COCKS. Can you give the number of cattle instead of number of herds?

Doctor RAMSAY. Yes.

Mr. COCKS. Give the number, rather than the herds.

Doctor RAMSAY. Take Alabama, with a total of 5,544 cattle. That was in two counties.

The CHAIRMAN. Let us see that. In Alabama? Where is that quarantine now? It is north of Alabama, is it not?

Doctor RAMSAY. Yes.

The CHAIRMAN. It is way up here at the southern line of Kentucky, is it not? Have you got it there?

Doctor RAMSAY. It is nearly all under quarantine.

The CHAIRMAN. Perhaps it is the southern line of Tennessee, the present quarantine line?

Doctor RAMSAY (after examination of map). Yes. Now, in Alabama, of course, we have been doing some work in that State, but the quarantine line is clear above. As one gentleman here stated, we are doing the work in patches, in hopes that we can get a patch of country that we can say to the State is clear, and throw a quarantine around this country, and it may be one or two or three or five counties. And

so we have been doing work all over, except down in Louisiana, where we really could not get a start at the work.

The CHAIRMAN. Where is that line now, the quarantine line?

Doctor RAMSAY. It is north of Alabama.

The CHAIRMAN. Is it on the southern edge of Tennessee or on the southern edge of Kentucky?

Doctor RAMSAY. It is on the southern edge of Kentucky and on the northern edge of Tennessee.

The CHAIRMAN. On the northern edge of Tennessee and on the southern edge of Kentucky?

Doctor RAMSAY. It runs up into Kentucky here, the quarantine line [indicating on map]. Here is Tennessee here, and it runs right across here, and last year it ran up there [indicating].

Mr. BROOKS. Doctor Ramsay, these minutes will be entirely unintelligible when they are written out unless you explain when you point this out to us on the map, instead of saying "here and here" and "there and there." Will you not say "To such and such a part of the country?"

Doctor RAMSAY. We will say there were two counties in Kentucky taken in, and that will be removed this year, and the line comes right to the northern part of Tennessee.

The CHAIRMAN. And Kentucky will be free altogether?

Doctor RAMSAY. Yes.

Mr. BROOKS. Does that map you have there, with a red line going diagonally across from southeastern Missouri to Texas, indicate the general outline of the quarantine strip?

Doctor RAMSAY. Yes.

The CHAIRMAN. That is what I was trying to get at.

Doctor RAMSAY. Yes.

The CHAIRMAN. And those purple spots on the map are the territory that has been cleaned this year?

Doctor RAMSAY. There has more than this been cleaned this year. This is an old map. A new map will be published on the 1st of February, when the open season is over.

The CHAIRMAN. Is all the State of Tennessee exempt now?

Doctor RAMSAY. It will be under the new regulations.

The CHAIRMAN. Is all the State of Virginia exempt?

Doctor RAMSAY. No, sir.

The CHAIRMAN. It will not be?

Doctor RAMSAY. No, sir.

The CHAIRMAN. I thought that you had very few there now.

Mr. LAMB. We have very few, but still we have that Greenville county, in North Carolina, bordering on us.

Doctor RAMSAY. Yes.

Mr. LAMB. But you are still moving farther on, and pretty soon Virginia will be exempt, I hope.

Doctor RAMSAY. They estimate that in another year Virginia will be exempt.

The CHAIRMAN. Just explain to the committee about that place in Alabama where you are trying to clear a spot.

Doctor RAMSAY. I could not point it out on this map.

The CHAIRMAN. About where is it?

Doctor RAMSAY. About in the middle of Alabama.

The CHAIRMAN. How far south of the present quarantine line?

Doctor RAMSAY. It is probably 150 miles.

The CHAIRMAN. Do you really hope to be able to go right into an infected territory and clear off a spot and keep it clear?

Doctor RAMSAY. At such places as the county will cooperate. In some places they do not care anything about cooperation, and in those places there is no use in our trying to do it. They have got to be educated in regard to the value of rotation of crops.

The CHAIRMAN. It is a good deal like going into a smallpox hospital and trying to eradicate the disease in one ward.

Doctor RAMSAY. It is going to be much easier to do than it is to go into the sugar region and get a rotation of crops.

Mr. LAMB. You have no fence laws in most of these States; that is the trouble.

Doctor RAMSAY. Yes, sir; that is the trouble, we have no fence laws.

The CHAIRMAN. For instance, in that place you are trying to clear, down in Alabama, how about that fencing in there?

Doctor RAMSAY. We have men there that own large tracts of land. In the sugar belt where a company owns a large tract of land they have a tenant on it, and they control that, and by our explaining it they see that it is for the benefit of the people to eradicate the ticks, and they cooperate.

The CHAIRMAN. Suppose that is not fenced, what is to prevent the cattle from outside the territory from roaming in?

Doctor RAMSAY. They prosecute them for violation of the law.

The CHAIRMAN. But in the meanwhile that exempted territory has been again subjected to disease.

Doctor RAMSAY. That is what the State appropriation is for, to keep up those line riders. We have line riders all along here in this open country; in December and January we have line riders wherever the State line happens to be the quarantine line. We are protecting that with line riders, riding along to see that nothing comes out. Every man has so many miles to ride, 20 or 30 miles.

Mr. LEVER. You are doing no work at all except in States which cooperate with you, is that the idea?

Doctor RAMSAY. We have to consult the States first.

Mr. LEVER. I understand.

Doctor RAMSAY. We can hardly do the work, any more than we have always done. That is, this whole country is under quarantine, and they can not ship anything north, and all we can do is to pay attention to the State line, and the work in the State must be done with the cooperation and under the authority of the State law.

Mr. LEVER. What do you require of the State authorities?

Doctor RAMSAY. We require them to take care of the quarantine line wherever it runs across a State.

Mr. LAMB. All you can do is to prevent those cattle from crossing this line?

Doctor RAMSAY. We can not prevent them from crossing the line where the line is not a State line, but the States can prevent that.

Mr. LAMB. You can prevent them from shipping on the cars, and bringing those cattle across on the cars?

Doctor RAMSAY. Yes; we can prevent them from bringing the cattle out on the cars.

Mr. LAMB. Then if the State law is in conformity with yours, and you work in harmony, it would produce a splendid result; but if the people of the State want to turn the cattle out on the commons, and public sentiment is against you, it is a hard matter to control those people.

Doctor RAMSAY. That is the trouble.

Mr. LAMB. That is the trouble; and then you run a line around them and quarantine a certain territory?

Doctor RAMSAY. That is what we are doing. The Secretary issues his proclamation of quarantine, and he mentions all these States, all of Oklahoma and Texas, and all of Tennessee, and all of Virginia, and all of North Carolina, and then that is all that he can do. But with cooperation from the State, the State says, "We want to draw the line across at a certain place;" and on the recommendation of Bureau inspectors we send out there to investigate the proposed line, we make that the State quarantine line, and they do the prosecuting when there is any to do, and we help to take care of the line. We do not receive shipments from below it. We recognize that in the shipment of cattle for a northern market.

Mr. LEVER. The State of South Carolina, as I understand it, has no State law at all?

Doctor RAMSAY. No, sir.

Mr. LEVER. I do not see how you can work in cooperation with them if they have no machinery through which they can work.

The CHAIRMAN. He says there is an effort to pass laws in the States where there are now no laws.

Mr. LEVER. Yes; we have a bill this year.

Doctor RAMSAY. That is one reason why there has been not quite so much work done in South Carolina.

Mr. COCKS. I do not understand the reason for going down below the line and starting work in the State of Alabama. It seems to me it would be well to start on the line and push the line down.

Doctor RAMSAY. The communications from the State of Alabama would indicate that they think they are being neglected. They want to know where the money appropriated last year is being spent, that was appropriated for the eradication of the cattle tick in Southern States, or in the tick-infested area.

Mr. COCKS. The Secretary should tell what parts it should be expended in.

Doctor RAMSAY. I know, but they want to tell the Secretary. They insist on some money being spent in their States.

Mr. HAUGEN. How much has that State spent for this work?

Doctor RAMSAY. They have not spent very much.

The CHAIRMAN. The whole talk before the committee last year was to push this line south every year; and they said that it would not take but a year or two to free Virginia and North Carolina and South Carolina and Kentucky, and so on through. That was the general talk, to push the line south, and not go into the center of the territory.

Mr. RANDELL. May I be permitted to say a word, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. RANDELL. I had charge of that hearing here last year, and if you will allow me to say a word I would like to say that some of these agriculturists testified that there were areas in the South which were practically free now, and they cited a region of 9,000 square

miles in the State of Louisiana that was free, and they said that they could with the aid of the State authorities absolutely free it and throw a quarantine around it. That has not been done because of the failure of the State law to permit the necessary cooperation, but that I remember was surely testified to here, and it may be that this area in Alabama is, as the gentleman says, practically free; and we are trying to start an area there that is free and work both ways.

Doctor RAMSAY. In such a case as that we would send an inspector there to be satisfied that what they say is right.

Mr. LEVER. And you would permit shipments from those localities in disinfected cars?

Doctor RAMSAY. We have not got any territory yet. We hope we will be able to turn an area loose here and there and make it a noninfected area. It has been only a few months that the work has been going on.

Mr. SCOTT. As a matter of fact, in your personal judgment, would you think that the result which we are all seeking, that is to absolutely crowd the quarantine line down to the southern boundary of the United States, would be reached more rapidly by working as Mr. Cocks suggested, along the line of that quarantine, pushing it down as you go, or would it be reached more rapidly by jumping over some intervening area and going to work in the middle of a State?

Doctor RAMSAY. I would recommend doing the work in spots as an education to the people in the places who do not want to do any work. We always find that very effective. Suppose they do some work in a space like this. Throw down the line here and let these people go out the next year as north of the line, while these people up here to the north are still held. They soon see where they made a mistake in not cooperating with the State or the Bureau, and it is always, probably, the most valuable kind of education to do that. Sometimes the people will not even allow our inspectors to inspect their cattle.

The CHAIRMAN. In this section of country down in Alabama is there any amount of cattle there?

Doctor RAMSAY. In some parts.

The CHAIRMAN. What is that—a cotton country?

Mr. LAMB. Yes, sir; it is that.

Doctor RAMSAY. There are not so many in the cotton country as there are in the sugar country.

The CHAIRMAN. Is there some sugar in Alabama?

Mr. FIELD. No, sir; not in Alabama.

Mr. SCOTT. To some extent, then, we are pushing this for the benefit of some other people?

Doctor RAMSAY. That is always the case.

Mr. LAMB. Two or three farmers in a community, as he says, will always protest against any inspection and will assert their rights in the matter and will keep a whole community from being freed, because these people will not declare them freed until the whole is released, and you have to quarantine right around those people and drive them out. They see their neighbors in the adjoining counties shipping and they see the advantage of it, and you appeal to their selfishness; that is the only way of getting at them—by showing the advantage of the quarantine line. In that way they have released

about a dozen counties in Virginia and they are pressing that line farther down toward North Carolina, until perhaps next year the line will extend down to the borders of South Carolina. But those people down in Greenville County, they turn their cattle loose in the woods and they get the ticks and come into the pasture ground and other cattle are infected.

The CHAIRMAN. Are you doing any educational work at present?

Doctor RAMSAY. We are doing patrol work, patrolling the line and keeping in touch with the work, so that they will know that we will be there next year, if the Department gets an appropriation to put us there. And it is thought advisable not to take all the men away, but rather to leave them there so that they may be getting ready and educating the people along from time to time in the work of cleaning up the infection.

The CHAIRMAN. There is very little movement of the cattle from the cotton section north?

Doctor RAMSAY. Not very much, because the cattle are too small, and it is not an industry down there to any extent.

The CHAIRMAN. There is some cattle industry in southwest Virginia; there is a good industry there?

Doctor RAMSAY. Yes.

The CHAIRMAN. And in Tennessee, of course, and in Kentucky. There is very little in that southwest corner—Scott County and Tazewell County. Is there any in North Carolina?

Mr. LAMB. Yes, sir; they ship them up to Richmond constantly.

The CHAIRMAN. You get a lot of those mountain cattle?

Mr. LAMB. Yes.

Doctor RAMSAY. Yes; and they are hard to inspect in that mountain country.

The CHAIRMAN. The ticks are not very bad there?

Doctor RAMSAY. No; not until you get to the edge of the timber.

The CHAIRMAN. Have you a memorandum that will show how much of the appropriation has been expended up to the 1st of January or up to the present time?

Doctor RAMSAY. Yes; I think I have. For the first quarter—June, July, August, and September, to September 30—there was expended \$23,230.61. For the next quarter—for the quarter ending December 31—there was expended \$46,071.72, making a total of \$69,302.33.

The CHAIRMAN. That leaves you about \$13,000 for the next?

Doctor RAMSAY. Thirteen thousand dollars. We have got quite a good many men on pay yet, as I say, doing educational work and patrolling the lines here and there and keeping track of the cattle that we have under quarantine. We have some bunches of cattle on this provisionally quarantined area north of the line, and they go every two or three weeks and see that they are there.

Mr. SCOTT. Your expenditure is chiefly in the way of salaries?

Doctor RAMSAY. Principally in the way of salaries. You might say in the first quarter for salaries the amount was \$13,593. For additional compensation—that is, for hire of horses and hire of local men and rigs to take the men there, and cowboys to help them, \$1,311. And under authorization \$7,934.

The CHAIRMAN. What does that mean?

Doctor RAMSAY. Expenses under regular authorization, such as board and hotel bills and office rents, and so on like this—office help.



All those are authorizations, authorized by the Secretary of Agriculture—under his authorization. Traveling is done on transportation requests—what we call Government transportation requests.

Mr. SCOTT. What is the estimate of the Department as to the amount needed to carry on the work during the next year?

Doctor RAMSAY. The Secretary made one estimate in August, when this work was really just nicely started. He made an estimate then of \$82,500. Then near the close of the year, in November, he made a later estimate—after viewing the work and being advised as to what could be done next year and the necessity for it, and on account of the assurances from the different States that better cooperation would be given and better laws would be made—he made an estimate of \$250,000 for next year.

Mr. SCOTT. Do you have any figures showing how much the States have spent this past year in cooperation with this work?

Doctor RAMSAY. I do not believe that we have got that here. We have those data at the office, and I could supply that to you.

Mr. SCOTT. If you have not it here, I wish you would furnish the committee with it, and furnish it so that it can go in the record of this hearing, in the proper place.

*Statement of amounts expended by States in cooperative work.*

Virginia .....	(a)
Arkansas .....	\$662. 35
California .....	17, 000. 00
Texas .....	500. 00
Oklahoma .....	7, 000. 00
Louisiana <sup>b</sup> .....	2, 747. 00
South Carolina .....	318. 50
Kentucky .....	(c)
North Carolina .....	6, 000. 00
Total .....	34, 227. 85

Doctor RAMSAY. You would like to have the amount of money expended by each State?

Mr. SCOTT. Yes.

Doctor RAMSAY. Yes.

Mr. SCOTT. You said a little while ago that in these areas that you had freed you would continue the inspection?

Doctor RAMSAY. An occasional inspection; yes, sir.

Mr. SCOTT. I would like to know how long you would expect that inspection to continue?

Doctor RAMSAY. Well, for a year. As the chairman states, there will be occasionally a bunch of cattle get across the line. We are not sitting up nights to watch them, and whenever they do get across some person is always ready to report it. Their cattle are clean, and they want to keep them that way, and they want to stay above the line, and we get a report in regard to a violation, and when we get it we go out and investigate and find that it is so. The State throws a quarantine around that man's farm who broke quarantine where the cattle are, and they have got to stay there. If necessary, if they are

<sup>a</sup> Not yet reported.

<sup>b</sup> Not cooperative; independent

<sup>c</sup> Small amounts expended by three counties.

out on the open range, we put a line rider or two over them to see that they stay there.

Mr. SCOTT. Suppose we got this line down to the Mexican border, would the ordinary quarantine suffice to keep our territory free from the tick, or would there still have to be a large force of inspectors traveling around over the territory where the tick has been?

Doctor RAMSAY. There would have to be more or less inspection wherever we find any ticks or any cattle infected. Of course as soon as the line goes south the northern cattle crowd down. People want to get the northern cattle. Of course you get deaths when the northern cattle go down there and get the ticks, and that is a good way to find out where the disease is—by coming in contact with the disease. The cattle become immune, and as soon as the cattle come in that are not immune we have deaths.

Mr. SCOTT. Is there a reasonable hope that if we could get this line down to the Mexican border we could then with a reasonable expense assure the healthy condition of our own country?

Doctor RAMSAY. Yes; I think we could.

The CHAIRMAN. You would have the cooperation of the Interstate Commerce Department, then.

Doctor RAMSAY. Were you speaking of the Mexican line or of little outbreaks here and there over our own country?

Mr. SCOTT. I was trying to find out to what extent you thought little outbreaks over our own country might occur.

Doctor RAMSAY. There would undoubtedly be some occur, as with all diseases. You can not totally eradicate the whole disease at once. There are going to be a few ticks left here and there, no matter how much care we take. With the greatest care, after having an area released from quarantine for a year, we are liable to have some ticks. We even found some in the State of Ohio recently.

The CHAIRMAN. In Ohio?

Doctor RAMSAY. Yes; one little outbreak. We immediately quarantined and had the cattle cleaned and disinfected.

Mr. LAMB. You can account for that, can you not?

Doctor RAMSAY. Yes; they came up with some shipments of cattle.

Mr. LAMB. Exactly. The cattle are immune, but as soon as you get them up in a higher latitude then it will kill them right away. I lost 40 one year that way.

Mr. SCOTT. Would these ticks that got up to Ohio have lived over the Ohio River?

Doctor RAMSAY. No, sir; they would not have lived through an Ohio winter, but they would have killed some cattle before the winter came.

The CHAIRMAN. They probably came up on some Texas feeders.

Doctor RAMSAY. Yes; they very likely came on some Texas feeders.

Mr. FIELD. Would they travel from one animal to another?

Doctor RAMSAY. Not the tick itself. But they drop to the ground and the eggs hatch there, and these little fellows would attach themselves to the cattle. The little fellows are the ones that have the poison in them.

Mr. SCOTT. Of course this instance in Ohio is an illustration of how the quarantine may fail. It failed in that particular case.

Doctor RAMSAY. Yes; there will be a failure once in a while. But with all the cattle that have been moving from the South to the North

to all the markets we have had but very few cases. I mention this Ohio case as an instance that I know of.

Mr. SCOTT. But such instances are very rare?

Doctor RAMSAY. Yes.

Mr. LAMB. These cars will carry them. You go down South and you will find cars there from New England and all over the country.

Mr. SCOTT. Yes. I think it is remarkable how efficient the quarantine is, considering.

The CHAIRMAN. That is right.

Doctor RAMSAY. You come to consider stretching a quarantine from one seacoast to the other, and it is quite a large undertaking. There will be a case now and then. I do not know of but two or three cases in the past year.

The CHAIRMAN. Did they lose many cattle in this last outbreak?

Doctor RAMSAY. Only two or three, I think.

Mr. SCOTT. Did you get your inspectors for this service through the Civil Service Commission?

Doctor RAMSAY. Some of them, and then we employed a lot of local men. The State recommended these men, and we employed them and paid them; that is, we gave them what we call temporary appointments, under the civil service, on account of not having civil-service men.

Mr. SCOTT. You found no difficulty in getting all the men you wanted?

Doctor RAMSAY. No, sir; we got the men to do the work that we could undertake with the amount of the appropriation we had.

Mr. SCOTT. Do you think there would be any trouble in spending \$250,000?

Doctor RAMSAY. No, sir; I do not think so. If we had time to get the men we could assure them of work.

Mr. SCOTT. I mean do you think there would be any trouble in spending it economically?

Doctor RAMSAY. That is the way we want to spend it; that is the only way the Department does spend any money. I have always found them very close. You have got to account for every 10-cent piece.

Mr. SCOTT. It is a good deal of a jump, from \$82,000 this year to \$250,000.

Doctor RAMSAY. Yes.

Mr. SCOTT. It is a good deal more complex and difficult thing to organize a service that will expend economically \$250,000 than it is to organize a service that will spend \$80,000.

Mr. LEVER. I suggest that Doctor Ramsay tell us just how he is going to spend that, to get it in the record.

Mr. SCOTT. I should be very glad to have him do that.

Doctor RAMSAY. As I told you, I am not the man who is actually spending that money, and I did not organize the work. I have simply been taking care of it for the past six weeks, as Doctor Steddom has been on a trip out to the Pacific coast to see the work personally.

Mr. SCOTT. When will he be back?

Doctor RAMSAY. About the 1st of February.

The CHAIRMAN. What part of the work have you been doing?

Doctor RAMSAY. I have been in charge of the general shipping; what we call the quarantine work of the southern cattle going north,

the quarantine work, these shipments, say, going to Ohio, and I have been looking after the work at the stock-yard centers, and I have had charge of the general eradication of the cattle and sheep scab, what is known as supervising inspector of all that work. I have been outside, and Dr. Steddom was in charge of the work here in the office, and he wanted to take a trip himself, so that I came in to do the office work, and he has gone out for a trip on this southern California line.

Mr. LEVER. But you are familiar enough with it to believe that in the interest of the cattle interest of the South if we appropriate this \$250,000 you can spend it economically in the next year?

Doctor RAMSAY. I believe it can be organized to take care of that work as well this year as the organization could be made last year to spend \$80,000 satisfactorily. It is always difficult to start the first organization, and the organization is well started, and for that reason we are keeping partially up during the winter.

Mr. LEVER. And this industry is big enough to warrant Congress in pushing the work of eradicating the tick, and getting rid of this infected area as rapidly as possible.

Doctor RAMSAY. We estimate that the southern cattle tick is costing the country about \$60,000,000 a year in losses, directly and indirectly.

The CHAIRMAN. How do you make up those figures?

Doctor RAMSAY. Well, I could not tell you all the corners, but there is a bulletin gotten out by our pathological division that explains that. It is made up by the loss in milk and in meat, and the loss from being unable to get northern cattle down there to improve the breeds of cattle in the South, so that the cattle there have become deteriorated and run down. They can not get a bull down there to cross on them to improve their herds in any way, and they are not making the money out of their cattle that they ought to make. The South should be a good cattle country.

Mr. LEVER. What is the difference in price of the cattle above and below the quarantine line?

Doctor RAMSAY. Just about half.

Mr. LEVER. About half?

Doctor RAMSAY. Yes; I do not know that it would be quite that.

The CHAIRMAN. That is almost as much due to the quarantine line as to the quality of the cattle.

Doctor RAMSAY. That is due to the quality of the cattle, as I say.

The CHAIRMAN. The great cattle country in this country is north of the quarantine line, except in Texas.

Mr. LEVER. But the quality of the cattle is largely affected by the presence of the cattle tick?

Doctor RAMSAY. Yes.

Mr. LEVER. And the Texas fever?

Doctor RAMSAY. Yes.

Mr. CANDLER. And the fact that they can not get the northern cattle down there is due to the fact that if they took them there they would become infected with the tick, and it would give them the fever and kill them?

Doctor RAMSAY. Yes, sir.

Mr. LAMB. Everybody knows that you can not carry cattle within hundred miles of there without their becoming infected.

Doctor RAMSAY. I was told by one man that he had been offered, if he would guarantee that a bull would live six months down there, they would give him \$400 for a bull that he offered them for \$100. He came to the Department and wanted us to improvise ways to immunize cattle, so that he could send a carload of bulls down there and take their notes at six months, on condition of the bulls living six months, at \$400 apiece. The southern people are very anxious to get good cattle.

The CHAIRMAN. On the other side of that, it is an extraordinary thing how the cattle in the State of New York have deteriorated in the last twenty years. We have not anywhere near as good cattle in New York as we had twenty-five years ago.

Mr. LAMB. How do you account for that?

The CHAIRMAN. They have gone into the dairy breeds and crossed them all up. Anything to get a calf and keep the cow in milk. I imagine the value of the cattle in the State of New York, notwithstanding the increased numbers, is a good deal less than the value of the cattle some twenty years ago. The dairy cattle are not good. They have crossed them up in all sorts of ways. The farmers themselves have used no judgment in the breeding of their dairy cattle, and they have crossed them all sorts of ways—Jerseys and Guernseys and Devons, and everything else. They had better breed from type than cross them up with everything. It is anything to get a cow in milk again. They do not raise one-fourth of their calves. So the fault does not lie in the South entirely with the cattle tick.

Doctor RAMSAY. Of course, the quarantine law takes effect February 1, and the ticks will not be active, so that we can not do anything in the eradication work until April or May. It comes earlier in some States than it does in others.

Mr. CANDLER. You have sufficient force now in the different States to keep the matter in statu quo until the season comes again?

Doctor RAMSAY. Yes; we have kept up an organization with a few men at each station.

Mr. CANDLER. And you believe that the work can not be carried on as it should be without this appropriation of \$250,000—it will take that much?

Doctor RAMSAY. It will take that much to organize the work right. Of course the appropriation of \$82,000 was given more as an experiment, to see whether the work of eradication could be carried on or not.

Mr. CANDLER. Have you had applications for work from Mississippi?

Doctor RAMSAY. We have had men there looking it up, but we have not done any work there as yet.

Mr. CANDLER. What part of the State have you been in?

Doctor RAMSAY. There is a Bureau man there now, traveling and making reports generally, all over the State, reporting conditions.

Mr. CANDLER. What is the condition?

Doctor RAMSAY. The condition is that there is pretty general infection.

Mr. SCOTT. About what proportion of the total area of this country is south of the quarantine line now?

Doctor RAMSAY. About what proportion of the United States?

Mr. SCOTT. Yes.

Doctor RAMSAY. About one-fourth of it. We have 11 States that we have quarantined. Eleven from 45; that is about a quarter of it, as near as we can guess at it, on a rough estimate.

Mr. SCOTT. Have you made any estimate at all as to the length of time it would take you to clean up the country, based upon your experience of this year, assuming that you should be given your \$250,000?

Doctor RAMSAY. I see from the sum estimated by one man who had been engaged in the work that it would take about twenty years to clean it up. That would take about \$200,000 a year.

Mr. LAMB. Let me ask you this question: Unless the States cooperate with you, and the people of the State are willing to stop turning the cattle out on the commons, can you do anything? Must you not first have a hearty cooperation of the State authorities before you can do anything?

Doctor RAMSAY. Yes, sir.

Mr. LAMB. That is the secret of the whole thing?

Doctor RAMSAY. Yes; and that cooperation is coming right along as we get ready to do the work.

Mr. LAMB. I hope so.

Doctor RAMSAY. The State of Mississippi and the States farther south have not got ready yet, and they are not going to meet trouble until it comes.

Mr. CANDLER. Where there is no fence law it is very hard. Where there is a stock law you have easier sailing?

Doctor RAMSAY. Yes; and they are getting stock laws; the different county commissions are making stock laws right along. The counties are taking that up. They realize that it is for the benefit of the people in the community. They are cooperating in every State, and they do a great deal of that in Virginia and North Carolina and right along. It is more by counties in the East than in the West. In the West we take it up under the State work and State appropriations; but the counties in the East take it up themselves. The county organizations are better in the East than in the West.

Mr. LEVER. Your work has been largely experimental this past year?

Doctor RAMSAY. Yes.

Mr. LEVER. And you have been trying to demonstrate that you can do something?

Doctor RAMSAY. Yes.

Mr. LEVER. And you have convinced yourself that you can do something?

Doctor RAMSAY. Yes; we believe that it is possible now.

Mr. LEVER. But you find that without an increase in your appropriation as large as this—to \$250,000—your work would have to be carried on in a desultory way and rather ineffectively?

Doctor RAMSAY. Yes, sir; we could not take up the work to the extent that would be necessary to go ahead and clear much ground each year.

Mr. SCOTT. You have cleared approximately 150,000 square miles?

Doctor RAMSAY. We have tried to spread that over the whole country. If this had been concentrated, you would have noticed it much more. But this has been a national appropriation, and the

money has been spent a little in each State, you see; we had work to do in each State.

Mr. SCOTT. I was going to ask this question: You have cleared 50,000 square miles this year. Do you not think with \$82,000 next year, and with the benefit of your experience and your organization, you could do at least that well next year?

Doctor RAMSAY. I should think we could.

The CHAIRMAN. You could do more, could you not?

Doctor RAMSAY. I should think so. \_Maybe more. Yes; I should think we could.

Mr. SCOTT. I should think that on account of having to experiment, as you say, all along this 5,000-mile line, you must have done some work that did not count.

Doctor RAMSAY. Yes.

Mr. SCOTT. Now, having made your experiments, could you not concentrate your work next year on some one section, say at the east of the line, and clear an even larger aggregate area than you did this year?

Doctor RAMSAY. That is placing the Secretary in a very difficult position, because these men in the West have much more in the cattle business than the men in the East, and they put in their claims for the eradication of the cattle tick out West.

Mr. SCOTT. Then commence in the West. I merely said the East for illustration.

Doctor RAMSAY. I think that each State that has a quarantine line across it should be given some work. The people all want some work done in their States, and this is a national appropriation expended by the Government, and they naturally put in their claims, and if we tell them to wait ten years, until we get to them, they are not satisfied.

Mr. SCOTT. It is well enough to put in the claims, but we vest in every executive officer discretion in all kinds of appropriation bills to do certain kinds of work in certain places, and the fact that the work may be wanted along the entire line of 5,000 miles does not impose on the Secretary the obligation to do that work.

Doctor RAMSAY. If the Secretary is sustained by Congress and instructed by Congress as to where the money is to be expended. But under this appropriation we try to do some work under all conditions, under the open range and under the farm conditions of the East, and now the Secretary is in shape to know about what can be done, and for that reason he asks the appropriation he does, believing it can be used judiciously.

Mr. SCOTT. That is a matter that could be taken up with the Secretary. I would say right here that I have no doubt that the committee regard it as entirely proper that he should have made experiments so as to find out what he could do under the different conditions that exist, but having made that experimentation, it would seem that if an appropriation is made that does not permit him to do the work all along the line, as a matter of common sense he would exercise his discretion and do that work where it would bring the best results.

Doctor RAMSAY. That would bring up the accusation of discrimination against the Secretary, unless he is actually instructed as to the distribution of the appropriation he receives.

Mr. LAMB. What do the open-range people in Texas say? Have you done anything there?

Doctor RAMSAY. Yes; quite a good deal of work there.

Mr. LAMB. They are alive to the thing?

Doctor RAMSAY. Yes; they are very much alive.

The CHAIRMAN. That is a great industry down there.

Mr. HAUGEN. You say some States have more interest in this than others?

Doctor RAMSAY. According to the amount of money that the people have invested in the cattle business.

The CHAIRMAN. They show their interest by making appropriations to cooperate with you, these States do?

Doctor RAMSAY. Yes.

The CHAIRMAN. Do you not believe that those States should be considered first, and that they should be taken care of first, where there is an industry of that kind?

Doctor RAMSAY. I would not care to express myself on that, because that looks like auctioning off the Federal work.

Mr. HAUGEN. Say there is a State here with \$100,000,000 in the cattle industry. Should not that State be taken care of in preference to some State that might have a cow to every two sections or four sections of land, or possibly \$1,000,000 invested in stock, and which takes no interest in it and where there is no industry of the kind—where there are no cattle?

Doctor RAMSAY. I have my own personal views on that, but I would not care to express them as an officer of the Bureau at all.

Mr. HAUGEN. Do you think we should appropriate \$250,000 and absolutely force it upon these people?

Doctor RAMSAY. The people where we have been working some have accepted cooperation and expect more work next year.

Mr. HAUGEN. Is it possible for any community to rid themselves of the cattle tick? They can clean these cattle as well as you can, and they have your bulletins, and it is possible for any community to take care of the tick in the South as well as take care of the sheep scab in the West.

Doctor RAMSAY. It is possible, but not at all probable.

Mr. HAUGEN. I want to get at this. The people that appropriate their money, the people that have the cattle and have the money invested, are not they to be taken care of first? Or are we to go to these places where they have a cow that is worth about \$2 or \$3 on every section of land, scattered very sparsely over the country, or should we not do more work where, for instance, in some of the States they have them by the hundreds; yes, and by the thousands—ranches—and where their capital is invested in that industry? It seems to me those people are entitled to more consideration.

Doctor RAMSAY. Those people have gotten more good out of what money has been expended in their States than the other people have, because they spend a great deal more money and time in cooperating with the Government than the other States. As I say, California and Texas have both gotten more territory free than the other States, because they did so much more work themselves. They employed more State men.

Mr. HAUGEN. They are more interested and it is a larger industry.

Doctor RAMSAY. More interested. One man in the State of Texas alone offered \$50,000 toward the fund.

Mr. SCOTT. Was that offer accepted?



Doctor RAMSAY. No; the Bureau could not accept the money.

The CHAIRMAN. To cite a parallel case to what Mr. Haugen has mentioned, I had an outbreak of scab. It slipped through the quarantine at Buffalo. I did not ask the Government to stamp it out for me. I knew what to do; I knew it from Government publications. I took the steps to do it. These people know exactly how to drive the ticks off of their farms.

Mr. LAMB. They will not do it, because they want to turn their cows out in the woods.

The CHAIRMAN. They can do it if they want to.

Doctor RAMSAY. In the open range you can clear the ticks off over a certain territory, and the men that are grazing there can keep their cattle clean, and that is all right until some fellow takes a notion to trail some ticky cattle across that range, going to market or going to somewhere else, and he infects your range again. And it is the same way in the East. A few men can clean up their cattle and absolutely eradicate the tick, but others will absolutely refuse, and you will find that in every State there are those who will refuse to do anything.

The CHAIRMAN. That is the objection I found a minute ago in your going right down into the middle of the infected territory and establishing a quarantine even on the borders of that country. The land is not fenced and cattle can wander in there and stay there for weeks in that sparsely settled and unfenced country without being discovered. The South is very lightly fenced.

Doctor RAMSAY. The people promise to protect them by range riding—by line riders.

The CHAIRMAN. As you say, they do not ride at night. Cattle could get in there with ticks on them and stay in there for weeks without being discovered, and that country would be infected without your knowing it, and perhaps the cattle would be shipped out with a clean bill of health.

Mr. FIELD. I think you have fallen into an error about there being any isolated territory as shown on this map. The quarantine line was always an irregular line, not running on parallel lines.

The CHAIRMAN. I know that they run a good deal on county lines.

Mr. FIELD. Take that county work in California. All the work that is done is zigzag, but it extends over a given line.

The CHAIRMAN. But there was no tick on the north side of it. This is on the south side.

Mr. FIELD. There was a little place running up there in the shape of a tongue in Kentucky [indicating on map].

The CHAIRMAN. They have exempted that now?

Mr. FIELD. Yes; and this work would manifest itself in the new work as it would in the original work.

Mr. SCOTT. But I think that the chairman's inquiry went to this point: Why it was that an area should be taken in the interior of Louisiana having infected territory all around it?

Mr. FIELD. I think the witness is mistaken in the fact. If the map means anything, it does not show any such work.

The CHAIRMAN. In his talk he says that they propose to do that.

Doctor RAMSAY. I say we are making some investigations. We have not done this as yet. We have men where the people have asked for work to be done away from the line—south of the line. Some of those people do not want to wait for ten years until we get down to

where they live. They have recognition now, and they have perhaps as much as a small State that they would like to have called free and to be able to ship out of, and they want us to make an investigation and examine the cattle and see if that could not be done. It has not been done yet.

Mr. SCOTT. If you did that there would be infected territory all around it?

Doctor RAMSAY. Yes, sir; and they would have to be at the expense of maintaining the line.

The CHAIRMAN. That would be at one side of it.

Mr. FIELD. That is right, if the witness properly comprehends it. Suppose a small territory in Alabama, isolated from its neighbors, by its own efforts rids itself of the tick. Is there any reason why, if they observe a quarantine line around this territory, the Government should not remove this boundary, or why the Government could prevent them from shipping out of that immune territory?

The CHAIRMAN. No; if they could continue to be assured that there are no ticks there; but a section may become infected overnight.

Doctor RAMSAY. There is always a great deal of land fenced, and some of it bounded by rivers, so that there is only a quarter or a half of it to ride, but the boundaries are usually marked. We find in the scab work out West that it is not as much trouble to keep these lines as you would think.

Mr. LEVER. You are doing scab work in the West?

Doctor RAMSAY. Yes.

Mr. HASKINS. By whose authority were quarantine lines established as indicated upon your map here, and where you have been doing your work?

Doctor RAMSAY. By each State authority, by the Secretary of Agriculture representing the nation, and each State sanitary board appointed by the governor or by the governor himself representing each State.

Mr. HASKINS. Those quarantine lines, then, are not confined to State lines; they are within a State, are they not?

Doctor RAMSAY. The Secretary quarantines the whole State. Then as a result of cooperating with the State he lets a part of it loose, and calls that a quarantine line, so that the State helps to maintain that line where it runs through a State.

Mr. HASKINS. What is there to prevent the owner of cattle within a quarantined district for shipping those cattle out of that district?

Doctor RAMSAY. If the railroad would accept them, he could do so. The railroads all have notice served on them, and they all have copies of the laws, and if they accept a shipment from there, they are fined.

Mr. HASKINS. They are not on shipping from one State to another, but on shipping their cattle from one quarantine district into another part of the same State?

Doctor RAMSAY. That is the same thing.

Mr. HASKINS. No. Here I hold in my hand the last decision of the Supreme Court of the United States.

Doctor RAMSAY. The State prosecutes in those cases.

Mr. HASKINS. Yes; the State can.

Doctor RAMSAY. The State can, yes, sir; and the Government

prosecutes at the State lines. They can go out into the State, but within the State the State prosecutes.

Mr. HASKINS. The State can prosecute, but they do not come under our quarantine act of 1903 or 1905.

Mr. LEVER. Mr. Haskins seems familiar with it. Let me ask him a question. General, who established the original quarantine line? How was it established?

Mr. HASKINS. By Secretary Wilson.

Mr. LEVER. Acting under the act of Congress?

Mr. HASKINS. It was not Secretary Wilson, but Secretary Morton, his predecessor, who established it under the act of Congress. This line was established here in the State of Tennessee, and cattle were shipped from south of the line into the State of Kentucky and the railroad company was prosecuted for shipping those into the State of Kentucky, and the court held in this decision, handed down the 17th of last December, that the Secretary could not establish a line within a State, because it operates as intrastate instead of interstate commerce.

Mr. HAUGEN. But this was shipping from Tennessee into Kentucky.

Mr. HASKINS. Yes, sir. It held that that would not apply, because the order of the Secretary would come into conflict with the Constitution.

Mr. HAUGEN. The quarantine line must be on the State line?

Mr. HASKINS. No; not necessarily; but he can not prohibit them from being shipped south of the line to the north of the line within the same State.

Mr. HAUGEN. No.

Mr. FIELD. That is a well-recognized principle.

Mr. LAMB. Yes; that is plain enough.

Mr. HASKINS. He said that the order issued by the Secretary as to the shipment between Kentucky and Tennessee was unconstitutional.

The CHAIRMAN. The order was that you could not ship from one side of the line to the other, whether in one State or another? There are some figures made up lately which show that 25 per cent of the dairy cattle of the North are not self-sustaining. Something over 25 per cent of the dairy cows of this country are not self-sustaining. So look out for your cattle, and get the right kind of cattle there. I only mention that to show you that the South is not the only part of the country that is suffering from bad cattle, and you need not charge the bad cattle to the ticks. There are many other things that are making or unmaking cattle. My authority for that statement is an institute lecturer.

Are there any further questions that the committee would like to ask Doctor Ramsay?

Mr. HAUGEN. You said, Doctor Ramsay, that you had something to do with the eradication of the sheep scab?

Doctor RAMSAY. Yes.

Mr. HAUGEN. In the West. What can you tell us about that? What progress are you making, and how much of it is there?

Doctor RAMSAY. We have got several States practically free from sheep scab. The States of Nebraska, Wyoming, Utah, Idaho, Arizona, and Colorado are practically free. We have a little in the southern part of Colorado yet. Another year will finish that up.

We have still got New Mexico and Nevada and California, Oregon and Washington.

Mr. HAUGEN. You have not got anything east of the Mississippi, have you?

Doctor RAMSAY. Just a little, here and there. Just as it is with the cattle tick; they get a case once in a while out of the yards, that gets away.

The CHAIRMAN. In the case I had, it did not show in the yard. The sheep were dipped regularly, but it broke out.

Doctor RAMSAY. We have some in Wisconsin. It breaks out in spots.

Mr. SCOTT. You have some in Iowa and Minnesota?

Doctor RAMSAY. They will go over and buy feeding sheep, and some will take them through the yards so as to have them dipped and they will be cleaned, but there will be a little infection break out after they get them in the feed lots. In that dry climate the scab seems to lie dormant pretty well, but as soon as they come East or they get a little moisture on them it will flame up. But it does not amount to much in the Eastern States, and it is pretty well eradicated.

The CHAIRMAN. Our farmers recognize it now quickly and apply the remedy.

Doctor RAMSAY. Oh, yes. At the prices they are paying for sheep, and men putting their good hard money into them every day, they are ready to take care of them. You will find that an influence. We have also a lot of work to do next year in Oregon and Nevada and New Mexico. New Mexico is a source of infection.

The CHAIRMAN. Are you working on the cattle mange at all?

Doctor RAMSAY. Yes; we are working on the cattle mange right along. We expect to do some of that next year, if we can.

The CHAIRMAN. There is very little of it, and just in spots.

Doctor RAMSAY. We have been allowing the cattle to be shipped to the market without inspection. I think probably it would be better to have them inspected, and we find the mange spreading among the cattle in the feed lots, and the men who buy the cattle suffer and bear the loss rather than the men who are growing the cattle. It would be better to have a closer inspection of the cattle on the range.

Mr. COLE. The success of that work is dependent upon the co-operation of the States?

Doctor RAMSAY. Yes; we can not do much but watch State lines, unless the States cooperate. If the State cooperates and gives our men State commissions, so that they can go right out and quarantine a bunch of cattle or sheep, it makes it easier; and it is only by holding to the plan we have adopted now in the eradication of the sheep and cattle scab; that is, we first send our inspectors out over the State or a portion of the State, and as a result we find that ten or twenty or fifty thousand of the sheep or cattle in that State, or in certain counties, are infected to the extent that it is going to jeopardize other States if they are allowed to be shipped out. We serve notice on the sheep or cattle sanitary board, or the governors, to the effect that unless active steps are taken to eradicate that disease existing in those certain counties, or the whole State, that we will quarantine the State as a whole.

We can do that. Then it is up to them to clean up the State, and they generally give our men the power, and the sheep or cattle are dipped under the supervision of the Bureau. We have found that to be more successful than under State supervision. The State officials have too many friends and neighbors, and know too many men, to do good work. Their job is always dependent upon whom they will favor, now and then. It has not been a success.

The CHAIRMAN. You find in that case that the State goes right to work and takes care of it?

Doctor RAMSAY. They must go to work; because suppose the State has two counties which have sheep scab to such an extent that it will endanger the other counties, and the adjoining States. We say "Unless you clean up those counties we will quarantine the State." That means a good deal, to quarantine a whole State. The Secretary can do that, if the circumstances are such as would warrant him in doing it.

The CHAIRMAN. The State generally cleans up those counties, then?

Doctor RAMSAY. Yes.

The CHAIRMAN. For the cattle tick?

Doctor RAMSAY. Yes.

The CHAIRMAN. We have quarantined whole States, and they do not seem to care. They have not made an effort, until last year.

Doctor RAMSAY. They are like David Harum says; they have had fleas so long that they don't mind them. [Laughter.]

The CHAIRMAN. That is it, exactly. They have never made an effort to help themselves. They have been under quarantine for twelve years, and have not made an effort, and you just mentioned a case out in the West where you threatened to quarantine them, and they went to work and cleaned up.

Doctor RAMSAY. The people there insist upon it.

The CHAIRMAN. If it was such a material interest in the South, I should think that the people there would insist upon it, too. Instead of doing their own work they come to us. Is not that the way?

Mr. RANDELL. No, sir. The Government has been appropriating lots of money to free the country of the scab in sheep.

The CHAIRMAN. I am just mentioning a case where they threatened to quarantine, only, and the State at once went to work and cleaned up.

Mr. RANDELL. They do not take care of this scab in sheep after the Government has taken care of it, generally. The Government has spent a great deal of money to do that.

The CHAIRMAN. That was not the statement of Doctor Ramsay, was it?

Doctor RAMSAY. No, sir; this was where the country was all scabby; when we had 80 per cent of the bands of sheep in that State with the scab.

The CHAIRMAN. God helps those who help themselves.

Doctor RAMSAY. And the Secretary told them that they would have to stay there and dip them twice under our supervision before they could get out of the State. They took it up with the governor and the board and took immediate action; and in many cases the States do not have money that can be appropriated for such pur-

poses, and for that reason it has always been found that they are willing to cooperate and lend us their laws to work under if the National Government would find the money.

Mr. COLE. How much does it cost the State of Nebraska, for instance, to free itself from the scab? How much of an appropriation did they make?

Doctor RAMSAY. I could not tell. We did nearly all the work there.

Mr. COLE. And furnished the money?

Doctor RAMSAY. Yes, and furnished the money and worked under their laws, and they supplied a lot of men, of course.

Mr. COLE. Are these other States, in the work of the extermination of the tick, supplying a proportionate amount of money for the work?

Doctor RAMSAY. California and Texas are. But the Eastern States I do not think are making much of an appropriation. They are using the money that is actually used for live-stock sanitary work.

Mr. COLE. Do they allow the Federal Government to use their laws?

Doctor RAMSAY. They allow us to use their laws, yes, sir; or they use their laws at our request.

Mr. LAMB. They cooperate beautifully in Virginia.

Doctor RAMSAY. Yes; in Virginia and in North Carolina.

Mr. COLE. Do you know how much money the Federal Government has expended in the work on the scab?

Doctor RAMSAY. All together?

Mr. COLE. Yes.

Doctor RAMSAY. It has been going on about eight years.

Mr. COLE. Do you know how much money has been expended by the Federal Government on that work?

Doctor RAMSAY. No, sir; that appropriation has been mixed up somewhat. We got small appropriations every year, and had to keep within the limits always, and did not do the work that we should have done, and then we took some money that had been appropriated for the eradication of the foot-and-mouth disease, or the extermination of the foot-and-mouth disease, that was left over from that appropriation, and used that in scab work, so that it would be difficult for me to make an estimate.

Mr. HASKINS. That went for the boll weevil, also?

Doctor RAMSAY. Yes; a part of it.

Mr. LEVER. These appropriations have been made from time to time since the Department of Agriculture has been a Department.

Doctor RAMSAY. Yes; appropriations for live stock.

Mr. COLE. Considering the value of the interests involved, has the Federal Government expended as much in the extermination of the tick as in the eradication of the scab?

Doctor RAMSAY. Well, I would not say they had. Of course this quarantine line has been sustained, and it costs a good deal of money to sustain that right along, and keep our men to look after it at the different stock-yard centers; but that has been done in connection with the meat inspection, so that it has not cost so much as it might look like, if we did not have the meat inspection along with it.

The CHAIRMAN. My point is this, Mr. Cole, that if the people of the southern infected States had shown the same disposition to cooperate and to get out of the quarantine as the Western and Northern

States have, they would have cleaned this country up of the tick long ago.

Mr. COLE. The testimony is that all these Western States did was to allow the Government to use their laws, and the Federal Government supplied the appropriations.

Mr. FIELD. That is not true of California and Texas.

Mr. SCOTT. Mr. Ramsay said that he would file with his statement a statement of the amount of expenditures that the States have made.

Doctor RAMSAY. I thought that I had that with me, but I can not find it.

The CHAIRMAN. He is going to furnish the amount that the States have furnished within the last year.

Mr. LEVER. It does not seem to me that this is an important question in any way. It seems to me that it resolves itself into this, does the Federal Government have a right and ought it to do the work? If it is a function of the Federal Government, why should the States cooperate at all?

The CHAIRMAN. That question enters into a great many things that the Agricultural Department is doing.

Mr. LEVER. That is very true.

Mr. SCOTT. I think we are all of the opinion that the cooperation of the State governments is necessary.

Mr. LEVER. It is necessary in so far as providing the machinery of the law by which to cooperate and enforce the Federal quarantine is concerned; that is true; but it is not necessary when it comes to the appropriation of money.

Mr. LAMB. The benefit of this work accrues to all these States. If you stop the tick in South Carolina, you are helping every western and northern State where these cattle can go, incidentally.

The CHAIRMAN. I do not object to it, but I do object where the States do not cooperate and help.

Mr. LAMB. Yes; I agree with you there.

Doctor RAMSAY. I would merely like to say, before I close, that nearly all our requests for getting cattle out of the South, nearly all the requests to waive the quarantine laws, come from the northern men, who want to get some cattle out of the South to feed. They will go to any kind of expense to get those cattle a little cheaper than they can buy other cattle.

Mr. COCKS. That applies to Texas cattle, not to North Carolina cattle. Is not that so?

Doctor RAMSAY. That applies to Texas cattle. Texas cattle will not get fat down there. They can raise a large crop of cattle, but they can not mature the cattle and make beef out of them. They can not raise the calves up north. Probably 55 per cent of the calves die. But if they buy these cattle two years old in Texas and the South and get them up there and keep them a year or two or two years on that northern grass, they make good steers.

Mr. COCKS. Do you not differentiate between the Texas cattle and the cattle from the rest of the South as being an entirely different proposition? The Texas cattle have been graded up.

Doctor RAMSAY. They raise cattle there in large numbers, so that the northern people can buy them there more than they do in other States.

The CHAIRMAN. Do you remember ever seeing the cattle of the cotton States?

Doctor RAMSAY. No, sir.

The CHAIRMAN. You are used to seeing the Texas cattle?

Doctor RAMSAY. Yes; the old-timers.

Mr. SCOTT. Do you know what the percentage of fertility is in the cows in what you call the South, as compared with that of the cows in the North?

Doctor RAMSAY. About 85,000. About 50,000 or 55,000—one-half of the percentage of the calves that they will raise.

Mr. SCOTT. Have the cattle anything to do with it, or is it climatic conditions?

Doctor RAMSAY. Yes, sir; climatic conditions. We have spring storms that wipe out pretty nearly all of our crop of calves up North, and it is the same way with the sheep—a big storm will do the same thing. Down South they do not have the storms and they are safer.

Mr. SCOTT. Is there a greater percentage of births in the South than in the North?

Doctor RAMSAY. Yes, sir; the cattle breed better. They do not have as much sterility in the cows, though.

Mr. SCOTT. Do you think that is a climatic condition?

Doctor RAMSAY. I think that is a climatic condition, too. I do not see any other reason for it.

Mr. LEVER. What reason is there why we should not become a great cattle country down there?

Doctor RAMSAY. No reason at all why you should not become a great cattle country, if you had the cattle.

Mr. LEVER. I want to bring that point out. Is it because we have not got the grass?

Doctor RAMSAY. I would not like to say. I have not gone over the Southern States enough to say. But it looks to me as though you ought to raise cattle there.

The CHAIRMAN. You have not got the grass, and that is a requisite for good cattle.

Mr. LEVER. We have the feeds there to raise good cattle.

The CHAIRMAN. But you are speaking of feeding cattle.

Doctor RAMSAY. They raise some good cattle in Texas where they used to be unable to raise good cattle.

The CHAIRMAN. The calves are dropped there and sold north. They do not keep them there; is that so?

Doctor RAMSAY. Yes, sir; they are sent north.

The CHAIRMAN. They will not grow to much size in that hot country. You can take down there the best shorthorns in the world and feed them as much as you please and they will deteriorate on account of the climate.

Mr. FIELD. You are familiar with conditions in northwest Texas, are you?

The CHAIRMAN. Yes, sir.

Mr. FIELD. And do you say that away out on the plains there no good cattle are raised?

The CHAIRMAN. The best bred cattle in the United States are in the Panhandle of Texas. You can breed them there, but you have got to ship them out of that country when they are calves or yearlings. If they stay there they will not mature properly.



Mr. FIELD. I am not very familiar with how large cattle ought to be, but I have seen some very beautiful herds there.

The CHAIRMAN. Yes; but you will find that almost all those good herds were born in Texas but grown and fed somewhere else. There is a picture here on the wall of a herd of Shorthorns raised in Texas, which took first prize for a herd of fat cattle in 1904. They were raised in the Panhandle of Texas, but were taken from there when they were calves to Ohio and fed by Mr. Black. If they had been kept in Texas they would not have been anywhere near that size, unless they had gotten the feed.

Mr. FIELD. We know that cattle can be increased in size by sending them farther north; but there are very fine cattle raised in Texas.

The CHAIRMAN. They are not grown on the ranges there. There is more good blood in Texas than in any other State in the Union. But unless you change your mode of feeding and growing them, you do not get the size, because they pretty nearly starve to death on the ranges in the winter time. The growers of Texas are selling them to be matured by the feeders in the north.

**STATEMENT OF HON. JOSEPH E. RANDELL, A REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF LOUISIANA.**

Mr. RANDELL. Mr. Chairman and gentlemen, I introduced a bill the other day to provide for an appropriation of \$250,000, which the Secretary asks, for carrying on this great work. I had no idea that there would be a hearing to-day, or I should have come here armed with a few statistics and facts which I think would interest you gentlemen somewhat. I desire to say as a Representative of Louisiana and that section of the South, that although we have not done our full duty in the past, Mr. Chairman, we are in earnest now, and we are ready to do our part, and we do not want the General Government to help us unless we are ready to help ourselves.

In Louisiana and every part of the South, so far as I know, we are willing to put up a dollar for every dollar that you put up. We have put up a good deal more than \$1 for every dollar that the National Government has put up in carrying on this fight in the past, and Louisiana at least is willing to carry on that same policy, and I believe that I voice the sentiment of the South when I say that every one of the other States is willing to do the same. Now, the cattle-tick quarantine was not established for the benefit or the protection of the Southern States. It was to protect the northern part of this country against the disease-bearing cattle from the Southern States. So every dollar expended by the National Government so far in investigating this subject and in guarding the quarantine has been for the benefit not of the South, but for that portion of the Union north of the line. The people of the South did not need that quarantine line. They had ticks in every direction—everywhere—so that it was not put there for them.

Do not charge up to the South \$1 of the expenditure of the Government for maintaining this quarantine. All we have received was the appropriation of \$82,500, which was made last year. That sum was for the purpose of eradicating the cattle tick from the South. But all expenditures theretofore were for the protection of that portion of the United States north of the line. I think it is well to bear that in mind in carrying on this discussion.

Now, gentlemen, I wish to present this to you as a business proposition. The Agricultural Department says that if you can eradicate the ticks from the South there will be a saving to the South, and hence to the nation, of fully \$60,000,000 a year, and no one who will read the bulletin upon that subject can doubt it. I had this all at my fingers' ends a year ago, but I have not read it since. Anyone who will read that bulletin, which you can get from the Agricultural Department, will become convinced that \$60,000,000 a year is a very conservative estimate. It is estimated by our home agriculturists and scientists that it has cost the South \$100,000,000 a year, and I firmly believe that that estimate is correct.

Assume that the estimate of \$60,000,000 is true; is not that a loss to the nation of \$60,000,000? You do not have any politics or sections in this committee; I thank God for that. That word is never allowed in your committee room. The South is part of the United States, and if the South saves \$60,000,000 the nation saves \$60,000,000. If that can be saved for a very small sum of money, then ought it not be done?

Now, sir, if the great Secretary of Agriculture—and I use the word "great" advisedly, because there is no single officer of the Government who gets nearer to the plain people—the farmers—and who benefits the plain people more than the Secretary of Agriculture—tells us that he needs \$250,000 a year to carry on this work, ought we not to give it to him? He has not done this unadvisedly.

He started this in a conservative way. He asked us last year for \$25,000, and then after investigating he asked for \$100,000, and we gave him \$82,500. He has carried on this work in a businesslike, systematic way, and as a result of that systematic and businesslike way of carrying on this work he says that he needs \$250,000, and can use it. Now, if he can do it for ten times \$250,000, Mr. Chairman, would it not be wise to expend \$2,500,000 in eradicating this tick, since by spending that sum we would be saving the nation \$60,000,000 every year? Suppose, sirs, that you could invest \$2,500,000 and thereby make \$60,000,000 a year for all time, would it not be a splendid investment?

I do not know that we are going to save that sum, but I firmly believe, sirs, that we will save more. I believe there is more in this cattle tick than meets the eye; more than you gentlemen think. I believe that the cattle industry in the South is absolutely necessary to the farming industry and success of the South. You gentlemen have had a great deal said to you about the cotton boll weevil. Now, the cotton boll weevil is in the South to stay, and it has rendered necessary a different kind of agriculture in the South from what we ever had before. We have conducted our farming in a desultory, careless way. We had no notion of the meaning of the words "intensive farming" in the South until the cotton boll weevil came. There are many lands where we used to make 200, 300, or 400 pounds of lint cotton per acre, on which, because of the boll weevil, we have been obliged to take up intensive farming, and on which we now make 600 to 1,000 pounds of lint cotton per acre. What does that mean? It means that we have got to intensify our farming. It means fertilization. It means putting humus in the soil, and turning a good deal of land out to grass. It means that you have got to

put cattle on the ground. It means that the cattle have got to come there in order to put humus in the land.

Plant less land in cotton; graze your land, and make that land more fertile, and you will make more cotton. And all of you wear cotton. There is not a man in this room who is not wearing cotton now, and you are giving a big price for it. All of you are interested in cheaper cotton, and if you are interested in that you are interested in something that will enable us to make cotton cheaper, and if you will eradicate the cattle tick and make the cattle industry an important part of the southern agricultural business, we will raise cheaper cotton. It is an absolutely essential part of the cotton industry to raise cattle. The two must go together. We people in the cotton portions of the South insist that we must have this tick eradicated in order to carry on the cattle-raising business.

I had a very strong letter sent to me by Mr. August Mayer, of Shreveport, and I wish to file that with this committee as a part of my remarks. He sent me samples of cotton raised on this intensive method, with the results of his experiments annexed.

I wish to file them with you. You will see that cattle raising must go along with cotton raising wherever we have the boll weevil. Now, we can not get rid of the cotton boll weevil. He is with us to stay. But we can cultivate the ground in a way to make it profitable in spite of him if we can intensify our farming and raise cattle along with other crops.

On this subject of intensive farming I do not believe the American people have given sufficient thought. Pardon a slight digression, but I was very much interested by a speech of James J. Hill, recently made at St. Paul, in which he said that if somebody would devise a means by which the people of the United States could make two or three hundred million dollars a year out of something dug out of the mines of the country, it would be regarded as of wonderful benefit to the nation, and its discoverer a great public benefactor. He says the wheat crop brings now about \$600,000,000 a year, and the average yield is  $14\frac{1}{2}$  bushels per acre.

Then he goes on and discusses the methods in use in Great Britain, where they get 30 bushels an acre; in France and Germany, where, by better farming, they get 40 bushels to the acre, and then the best methods prevalent in Belgium and the island of Jersey, where they get 50 to 60 bushels. His conclusion is that if we could adopt the comparatively primitive methods of Great Britain and raise twice as much wheat as now—that is, 30 bushels, instead of  $14\frac{1}{2}$  per acre—we would receive \$600,000,000 a year more than we now get. Now, I appeal to you as a representative of the entire South to help us intensify our farming by helping us to raise cattle there. We can not raise them now. We can not import your fine bulls and cows from the North, which are necessary to make cattle raising profitable to us. We want to do that along with our sugar and cotton industries, and along with the other kinds of farming that we have.

Mr. SCOTT. Pardon me for interrupting you. I think there is no disposition on the part of the committee to cut out this appropriation. The only question which the committee will have to determine, I think, will be the amount of the appropriation to be made.

Mr. RANSELL. Yes, sir.

Mr. SCOTT. And, with that idea in mind, I would like to ask your judgment as to whether a lesser amount, say \$100,000, if concentrated in a comparatively limited area, might not bring better results, greater aggregate results, than \$200,000 or \$250,000 spread out along the entire quarantine line?

Mr. RANDELL. In reply to that, Mr. Scott, I would say that we have a pretty wise man at the head of the Agricultural Department, and I should give him what money he asks for and not restrict him in the use of it. In the practical application of that money I believe to a great extent I would follow the methods suggested by him.

I would try to spend a good deal of the money in the communities most willing to help themselves. I know on the Mississippi River where I live we spend a good deal of money on levees, and the policy of the Government has been to help those communities who help themselves to build their levees, and who are willing to put up about \$2 for \$1 that Uncle Sam puts up. So that if you find a community where the people are willing to cooperate vigorously and pay a larger part of the cost, I believe a greater part of the money should be spent there, and I believe Secretary Wilson will spend it there if he is entirely unhampered in the manner of expending this appropriation. But I do think that some kind of educational work should be carried on in other communities. Now let me illustrate. In my own State we have in southwestern Louisiana about 9,000 square miles (and I want to say that we raise a great many cattle there, too) which is free from the tick.

There is fine grass there, and there are about 9,000 square miles where the agriculturalists say there are no ticks. They say, and Doctor Melvin corroborated it last year, that that area might very well be quarantined, that the State might put a quarantine around it, and with some little restriction from the Government the cattle from that particular 9,000 square miles might be shipped north in carefully prepared cars. Now, I think a little work of that kind might be done, if you find a community that is willing to do it. Mind you, Louisiana is away below the quarantine line and we can not expect to reach there for several years, and we would like to have a little experimental work done there as soon as the State gets ready.

If the condition is as stated by the agriculturists of Louisiana, I say that would be a good chance to cooperate with us, and wherever we find communities willing to cooperate in extending the circle of the quarantine area I believe that should be done. I do not believe that I can add anything to what has been said.

I sincerely hope that you will find yourselves free to make this appropriation. Do not, for Heaven's sake, be penny wise and pound foolish about a thing like this. It is a tremendous stretch across from the Pacific to the Atlantic, and \$250,000 is not much. When my friend, the General, had the foot-and-mouth disease up in his country—New England—some years ago, we did not hesitate to give them \$500,000 to stamp it out. Now, the Secretary of Agriculture is going to spend this money carefully. Only a part of the appropriation for the foot-and-mouth disease was spent on it, and the boll weevil got the rest of it, did it not?

Mr. HASKINS. Yes, sir; I believe so.

Mr. RANDELL. The Secretary told you last year that he needed \$100,000 and you gave him \$82,500, and I believe that he spent it

wisely. And now for Heaven's sake do not hamper him, but give him the amount that he says is necessary.

The CHAIRMAN. On what facts and figures is that estimate of \$60,000,000 based? That is 3,000,000 cattle at \$20 apiece.

Mr. RANDELL. They tell me that the cattle brought from the South to the quarantine line and sold lose from a quarter to half a cent a pound in value. Some one swore that in a little town in Georgia there were two beeves; they were brothers, and weighed exactly the same. One was matured south of the quarantine line, and the other was matured north of the quarantine line, and he says the one south of the quarantine line brought \$5 less than the one north of the line. Captain Lamb testified at that time that he had seen them sold frequently in Virginia, and animals half a mile south of the line brought a quarter to half a cent a pound less. Professor Morgan testified that every cow in the South loses an average of 1 quart of milk per day because of the cattle tick. She loses so much blood that the milk is not as nutritious as it should be, and in actual quantity the loss is 1 quart per day. He testified that the average full-grown animal in the South loses between 600 and 700 pounds of blood every year because of the cattle tick.

He and Mr. August Mayer both testified that the cattle of the South go into the winter season so run down, and with their blood so watery and so weak at the beginning of the winter because of the cattle tick, that they do not weather the storms of the winter. They die in immense numbers. I have seen them very often, poor, miserable, scrawny little blasts, that do not look like they were fit to eat. I want to tell you that the only time in my life that I was ever ashamed of being a Louisianian was once when I was in Kansas City, and I was going around those cattle yards, a most interesting sight; thousands and thousands of beautiful cattle in those great pens, which you gentlemen have often seen. Finally we came to a little herd of the scrawniest, roughest, raggedest little beasts I ever saw. We were walking along on the plank on the top of the partition fence between the pens. I said to the guide, "Where do those cattle come from?" "Louisiana," said he. "Oh, no, my friend," said I, "I am a Louisianian, and we have no such cattle there." He said, "But I am not joking with you; they do come from Louisiana, and I tell you the worst cattle in this country come from Louisiana and Arkansas."

I would have been glad to have a hole open in the earth and let me through about that time, because there were several gentlemen in the party. But it is not because the sun does not shine as bright and warm in Louisiana as in the other parts of the country, or because the grass does not grow as well or taste as sweet, but it is because of these vile little cattle ticks, which are on every single bovine animal in that State. Oh, yes, Mr. Candler, Mississippi is in the same fix. Every one in the State has ticks on them, and they poison them from the time of their birth. They do not grow up as they should. An animal that loses 600 or 700 pounds of blood a year does not thrive. Think of a cow that fails by 1 quart a day to produce her proper quantity of milk through no fault or her own and her master. Can such a cow maintain her growth or feed her young properly? No, sir; she can not do it. This may be a little exaggerated, but these are the statements of reputable agriculturalists, and I believe they are

correct. The Agricultural Department says we lose \$60,000,000 a year, and August Mayer says fully \$100,000,000 a year on the cattle we have now.

But is that a fair way to figure the loss? No, sir; you should figure the loss on the cattle we might have, on the profits we might make out of that great industry. Your chairman here is in the cattle industry. We have the cotton meal and things of that kind to feed them on. We can raise two or three crops of sorghum a year. You can not do that in New York, but we can do it in Louisiana. We can raise any quantity of foodstuffs for our cattle. Give us a chance, when we get ready, and let us see what we can do.

The CHAIRMAN. Can not the farmer get rid of the tick on his own farm?

Mr. RANDELL. No, sir; he can not, because if he rids his own farm his neighbor's farm is full of ticks.

The CHAIRMAN. As I understand, Doctor Ramsay is proposing to quarantine a little place there that they think is free from ticks.

Mr. RANDELL. Three or four counties—draw a line around that area.

The CHAIRMAN. It was shown here by the entomologist that this tick climbs up on a blade of grass and from there gets off on the animal that comes to him. He would stay on the blade of grass and die unless the bullock comes there and gives him a chance to get on. He stated that that was the life history of the animal.

Mr. RANDELL. That is true, too.

The CHAIRMAN. If that is true, and you have no fences in that country, how would you stamp the tick out?

Mr. RANDELL. Possibly if you had a good fence you might keep it out of a farm; but do you not know that having two or three counties without ticks in them, quarantined by officials of the Government, is a very different thing from having your own farm so quarantined that an ambitious neighboring bull can not jump over the fence, for instance?

The CHAIRMAN. I know that bulls are mighty ambitious.

Mr. RANDELL. They are; and it is hard to keep them away, gentlemen; it is a mighty difficult thing to keep them away. It is one thing to have a farm and try to keep it clear of ticks and another thing to have a big area like this. As I told you, in Louisiana we have 9,000 square miles already free of ticks. In an area of that size interior work is feasible, although I do not lay so much stress on the interior work. I think, with you, that the main effort should be to push the line down from the north, and I am making no effort, as I told you, to get this money spent in Louisiana. I want to see the work go on, knowing that in a few years we are going to reach Louisiana. I thank you, gentlemen, for your attention.

Hon. JOS. E. RANDELL,

*House of Representatives, Washington, D. C.*

MY DEAR SIR: Permit me to congratulate you, as the sponsor of the recent tick legislation, upon the showing made by the Agricultural Department in the work of the eradication of the fever tick from our country. The wisdom of the action of the Congress in making an initiatory appropriation at its last session for this great work is quite apparent from the annual report of the Secretary of Agriculture, as it is also from personal observation, to those living within the affected territory who have taken an active interest in this momentous movement against perhaps the greatest pest to American agriculture. I dare

say that the interest aroused among southern agriculturists and stockmen particularly, and to a great extent the people generally, in this new work has surprised even the most sanguine of those responsible for the war against this tick. The short campaign of only a few months' duration conducted by the Department of Agriculture, and with only very limited means at its command, has proven that the work authorized by Congress was well timed, and that the greatest good may be expected from continued and larger agitation and practical work under the direction of the Agricultural Department. It needs only the cordial support of Congress for several years and the National Department of Agriculture, with cooperation of the several infected States, and we will drive this costly pest from our continent.

I have on former occasions by speech and by writing shown the enormous benefit to be derived from the eradication of the cattle tick. In those utterances I have chiefly dwelled on the subject from the standpoint of the husbandman. But there is a feature to it that has not been extensively mentioned as yet, and with which I, as a cotton grower, am much more largely concerned than as a producer of live stock. Indeed, for the southern United States this view of the matter to which I wish now to call your special attention is much more important and far-reaching than all others, and I present this feature to you now, with the hope that you will lay it before your fellow-Members of Congress in support of your bill supplying the Secretary of Agriculture with the funds he asks at the present session for tick eradication.

The point which I wish to make clear and bring prominently to your attention is this: That the eradication of the cattle tick is a necessity in order to maintain the future undisputed supremacy of the United States in the production of cotton.

I will say that at the present and in the immediate future the cattle tick as an indirect enemy to the cotton industry exceeds in importance the much and justly dreaded boll weevil; and that as an enemy to the cotton industry the cattle tick constitutes from now on until it is eradicated from the cotton-producing States a more important factor in our national economy than it does directly as a deterrent in the production of live stock, notwithstanding the enormity of the damage caused by it in the latter rôle.

The chief industry of the southern United States should and must forever be the production of cotton, for more than one reason.

First. Among all known lands ours seems best suited to the growing of this one great world necessity.

Second. It is the product which makes foreign countries yearly our debtors in the interchange of goods.

Third. Cotton, among all products of the earth brought forth directly by the soil, is the one most ideally adapted for a country's export, because by the exportation of the cotton fiber we do not rob our soil of any appreciable amount of fertility, which can not be said of any other exported product of the soil. The sending abroad of our surplus cotton is therefore all gain. The energy of our agriculturists ought, therefore, to be persistently directed to the growing of cotton as their main crop. This should be the policy of our Government. We should never permit our supremacy in this field to be put under a cloud for a moment. The fear occasioned recently by the advent of the boll weevil in our country that the United States would in the near future, or sooner or later, be incapable of furnishing what cotton the foreign spinners need has caused greater activity in foreign lands to grow the crop which is America's greatest export and to which is due our country's healthy bank account in those foreign countries. This fear should be dispelled once and for all to hold what we have for all time. How can we do it? I say, eradicate the cattle tick!

Why so? The boll weevil is here to stay, as far as we can see at present. By research and experiment it has been demonstrated that under certain conditions the boll weevil need not interfere with the successful growing of cotton. On the contrary, we have lately frequently seen greater yields of cotton in boll-weevil-infected territory than ever before. This was in many instances not accidental or due to natural causes, but to the artificial conditions created by man—in this instance by the farmer. What are these conditions? I will enumerate them in the order of their importance, as was shown by my own experiments, as well as those of others, to wit:

First. The preparation and the mechanical condition of the soil before planting.

Second. The proper fertility of the soil.

Third. Proper, rapid cultivation after planting.

Fourth. The proper variety of seed.

As will be seen, the preparation of the soil, the seed bed, before planting, is the most important feature in the successful raising of cotton. The proper preparation of the soil, its physical condition, for the reception of the seed, and thereafter the growing of the cotton plant, is very largely dependent on the humus contained in the soil. If the soil has been deprived of this vegetable substance it is very nearly sterile and valueless as a producer of crops. Fields continually planted in one crop will eventually have no humus left in them (and thus become profitless to the farmer) unless the necessary humus is regularly restored by fertilization and rotation of crops. No fertilization is equal to that brought about by the use of stable manure or that due to the feed lot.

It will restore the soil better than any other fertilizer, especially if rotation of crops is practiced also. To secure, therefore, the greatest requisite to successful cotton planting, i. e., perfect preparation of soil and favorable soil conditions, we should have fertilization with stable manure. To have stable manure we must have live stock, especially cattle, to utilize to the fullest our cotton seed and the roughage produced by a soil-conserving agriculture. To have cattle we must be rid of the parasitic fever tick. And, conversely, if we are rid of this tick we will have cattle, and thence stable manure, and also rotation of crops, as a live-stock industry has this in its wake. And, consequently, we will have the foremost requisites for the successful cultivation of cotton—that is to say, a friable, rich soil, warm early in spring, moisture-retaining during drought, stimulating to plant growth throughout the growing season—in other words, all the foremost essentials to the growing of a profitable cotton crop in a boll-weevil-affected country. I assert that with the thorough preparation of such a soil as soon as the seed is intrusted to it half of the crop is made and 75 per cent of the ordinary risk of crop production is overcome.

The second essential in the successful culture of cotton (in a weevil-infected territory) is the proper fertility of the soil.

It is quite a mooted question as yet in how far chemical fertilizers do contribute to soil improvement, especially if used alone for a long period of time. Aside from the objectionable feature of great cost, chemical fertilizer must also be objected to in that it does not restore humus, i. e., life, to the soil. To properly fertilize the soil so as to bring about the second most necessary feature for the successful production of cotton in the weevil-infected country we must have a healthy live-stock industry, chiefly cattle.

With soil preparation and fertilization with stable manure, to have a seed bed as nearly perfect as possible, and practicing crop rotation, the yield of cotton per acre can be very greatly increased with the boll weevil present. It can be doubled over the yields of former years by all, trebled by many, and even quadrupled by the few more expert and more intelligent. My own experiments have led to these conclusions, as will be apparent to you by examining the accompanying photographs and the notations thereon.

In other words, I wish to state in the most emphatic terms that, comprehensively viewed, the eradication of the Texas fever cattle tick will more than offset the invasion of the boll weevil concerning the production of cotton.

Rid our country of the tick, a live-stock industry will follow in the cotton-growing States as a subsidiary industry. We will rotate our crops, and we will grow cotton right. We will grow cotton in quantities to suit the demand of the world. No one need thereafter ever fear that the United States will not be able to furnish what cotton the world needs. We are good for 30,000,000 bales on half the land now in cotton culture, provided we are rid of the cattle tick!

America's greatest export need not be put in jeopardy ever if we exterminate the cattle tick. The extermination of the Texas fever cattle tick will be notice to all the world that we will have no competitors in the cotton-producing industry. Our bank account in foreign countries will swell to greater proportions from year to year, due to the ever-increasing exportation of cotton; this, of course, provided the cattle tick is driven from our country.

Rid our fair land of this tick, then the South will be a cotton country greater than ever—a country of plenty such as the world has never seen.

Cotton should and will forever remain our chief crop. It is the ideal crop for the South. It is the ideal crop for a country's export. Its continued exportation will only make our country richer with every year. For if we should send 20,000,000 bales of cotton—pure cellulose—abroad each season, equivalent to ten thousand million pounds, or on a still greater scale, we would not send along



with it enough of our soil fertility to decrease our yield any for a thousand years to come. But our ships would return with the foreigners' gold to the tune of \$1,000,000,000 per year; all this and much more, only provided we exterminate the cattle tick.

To maintain our cotton industry in its supremacy is but the soundest statesmanship. To keep the cotton crop at its supremacy in the Southern United States is statesmanship equally renowned. To maintain and ever increase our cotton exports should be our Government's never-failing policy. Such aim will make us permanently the creditor nation of the world. To export cotton—cellulose—is truly a country's ideal business with foreign peoples, for there is connected with it no loss—all is gain.

Eradicate the cattle tick.

Sincerely, yours,

AUG. MAYER.

SHREVEPORT, LA., December 22, 1906.

## I.

### PREPARATION OF SOIL PRIOR TO PLANTING AND SOIL-FERTILITY EXPERIMENT.

[Made by Aug. Mayer, Shreveport, La., 1906.]

The soil, of good and proper fertility, was prepared as if to receive small garden seed. No cultivation was given the cotton except keeping the weeds and grass down by "flat-weeding" with hoe. Cotton was planted April 16; was up April 23. Made full crop in one hundred days from planting. Boll weevils, appearing thickly in August, could do no damage. Bolls began to open August 3, one hundred and nine days from planting. Bolls were all open by September 15. Yield of stalk No. 1 (on exhibition),  $4\frac{1}{2}$  ounces of lint, equivalent to 800 pounds of lint per acre. Staple,  $1\frac{3}{8}$  inches; 35 per cent lint to seed cotton.

## II.

### PREPARATION OF SOIL PRIOR TO PLANTING AND SOIL-FERTILITY EXPERIMENT.

[Made by Aug. Mayer, Shreveport, La., 1906.]

The soil, of good and proper fertility, was prepared as if to receive small garden seed. No cultivation was given the cotton except keeping the weeds and grass down by "flat-weeding" with hoe. Cotton was planted April 16; was up April 23. Made full crop in one hundred days from planting. Boll weevils, appearing thickly in August, could do no damage. Bolls began to open August 3, one hundred and nine days from planting. Bolls were all open by September 30. Yield of stalk No. 2 (on exhibition), 6 ounces of lint, equivalent to 1,125 pounds of lint per acre. Staple,  $1\frac{1}{4}$  inches; 30 per cent lint to seed cotton.

### STABLE-MANURE FERTILIZATION.

*Early maturing New Hope cotton, storm proof.*—Yield of stalk No. 1, 2 pounds 1 ounce seed cotton, equivalent to 1,850 pounds of lint per acre. Boll weevils present.

Raised in Red River Valley by Aug. Mayer, of Shreveport, La.

*Record, season 1906.*—Planted April 19; August 15 counted 141 grown bolls, several open; age, one hundred and eighteen days from planting. August 15, broke off accidentally upper third of stalk with 28 half-grown bolls on (mostly dropping off later). Stalk, with cotton on, exposed to weather to October 13, none falling out. A number of bolls on split-off branches were lost by rotting on the ground. Seed cotton picked off stalk October 13, 2 pounds 1 ounce. This cotton has exhibited the remarkable quality of putting on two or more bolls to the joint.

*B. S. cotton.*—Originated and bred by Aug. Mayer, Shreveport, La., in the Red River Valley of Louisiana. Boll weevils present. Yield of "hill," 2½ pounds seed cotton, equivalent to over 7,000 pounds seed cotton, or 2,000 pounds of lint, per acre.

	Number of days from date of planting.
Planted April 16.....	0
Coming up April 23.....	7
Grown bolls, estimated to yield 1 bale per acre, July 25.....	100
Bolls begin to open August 3.....	109
93 grown bolls counted on stalk No. 1 August 8.....	114
Picked first cotton off stalk tagged No. 1 August 8.....	114
Picked off stalk No. 1, 40 bolls, yielding 10 ounces seed cotton to date, August 24.....	130
83 per cent of bolls on stalk No. 1, open; picked therefrom 18 ounces seed cotton to date, September 8.....	147

Final yield of stalk No. 1, 22 ounces of seed cotton, equivalent to more than 4,000 pounds per acre. Yield of plat at rate of  $1\frac{1}{2}$  bales per acre. Stalk stood much too thick or yield would have been greater. B. S. cotton is storm proof. Staple  $1\frac{1}{8}$  inches full. Fiber strong.

(At 5 o'clock p. m. the committee adjourned.)

COMMITTEE ON AGRICULTURE,  
HOUSE OF REPRESENTATIVES,  
*January 11, 1907.*

The committee met at 10.30 o'clock a. m., Hon. J. W. Wadsworth in the chair.

BUREAU OF ENTOMOLOGY.

The CHAIRMAN. Gentlemen, we asked Doctor Howard to come before us this morning, but he is in Massachusetts on the gypsy-moth business, so two gentlemen who are assistants of his, Mr. Marlatt and Mr. Hunter, are here in his stead.

We will hear from either one of you gentlemen. Mr. Marlatt, you have charge of the gypsy-moth business principally, I believe?

Mr. MARLATT. Mr. Chairman, I am assistant chief of the office, and am second in charge of all the work under the Entomologist. Mr. Hunter has the particular charge of the boll weevil work, and I would like to have him speak on that subject.

STATEMENT OF W. D. HUNTER, BUREAU OF ENTOMOLOGY.

The CHAIRMAN. We will hear Mr. Hunter first, on what work has been done on the boll weevil, and you [Mr. Marlatt] can tell us afterwards what work has been done on the gypsy-moth business.

Mr. HUNTER. Mr. Chairman, I suppose what the committee would like to hear is what has been accomplished?

The CHAIRMAN. The actual progress you have made since last year toward at least restraining the damages done by the cotton boll weevil.

Mr. HUNTER. One of the most conspicuous features of new information we have is in relation to the parasites of the boll weevil. A year ago, when Doctor Howard appeared before the committee, he explained that the nicest way of controlling injurious insects is to reestablish the equilibrium of nature and set the parasites to work.

The parasites of other insects are the factors that reduce the outbreaks of caterpillars and one thing and another in different parts

of the country. The boll weevil, being a new insect making its way across the cotton belt of this country, far from its native home, had gotten away from those influences that nature has provided to hold it in check. As I say, Doctor Howard made the statement last year that there was very little hope at that time for assistance from these parasites.

During the past year, however, we have information that shows an entirely different view of the situation. In Texas there are a number of insects related to the cotton boll weevil, and there are natural parasites of these different related species of weevils. Now we find, all of a sudden, that these parasites of other related insects are beginning to transfer their attention to the weevil. These other weevils sometimes live in weeds and flowers of various kinds that grow in the vicinity of cotton fields and on the prairies. Now that there is a much greater abundance of boll-weevil food for them than of their natural food, since they are not very closely restricted to such hosts, they have transferred their attention to the boll weevil. In one case, at Waco, in the Brazos Valley, we found that as high a percentage as 40 of all the immature stages of the weevil in the cotton fields had been destroyed by these parasites.

The first thing we did when we began to see the full bearings of this parasite matter was to make a general survey of the infested area in Texas and Louisiana, and find out exactly what the status of the parasites was. Accordingly we made examinations at different times through the season at fifteen or twenty localities scattered all the way through the infested area. Large numbers of infested squares and bolls were selected in different situations within these different regions that I have mentioned, and the basis of our present knowledge is the examination of those squares and bolls that was made in the laboratory.

We now know exactly what parasites are at work. We know that in one region in southwest Texas there is one particular kind of parasite, in central Texas another one, and in eastern Texas still another. In Louisiana, over the infested area, several distinct parasites, different from those that have begun operations elsewhere, are just beginning to devote their attention to the weevil; and in that fact we have one of the most hopeful views of the situation.

In illustration of the attempts we have made to make some practical application of this knowledge, at Dallas we had a 60-acre field of experimental cotton, and found that there were very few parasites attacking the weevil in that field. Down at Waco, 100 miles away, however, we found a very high percentage of parasitism of the weevil. So we sent a couple of men to Waco to obtain parasites from that field. They obtained large numbers of parasites and brought them to Dallas in cages, and liberated them in this comparatively uninfested field of ours. Just before this a careful examination was made, and we determined exactly what the parasites in that field were and exactly what they were doing. Then the liberation was made, and at frequent intervals after that examinations were made to determine exactly the effect of this liberation. We were really astounded to find the effect that had been accomplished. While before this liberation there was a rate of parasitism of only 5 or 6 per cent, in two weeks from this liberation of several

hundreds of parasites in one portion of the field the percentage had run up to over 20. •

That illustrates, we believe, what can be done in a practical way in merely assisting nature to reestablish the equilibrium. The weevil has been there long enough so that it has reached a certain degree of stability in habits. These parasites are ready and provided by nature. Their function in nature is to check such insects as the weevil. What little we can do, like taking parasites from one quarter and liberating them in other quarters where they are absent, is exactly in the line of what nature provides should be done.

Mr. HENRY. Have you abandoned your experiments with Guatemalan ants?

Mr. HUNTER. Yes; after two seasons it was found the ants could not withstand the conditions in this country, and could not do for the cotton up here what it has been found to do in Guatemala.

Mr. FIELD. I wish in that connection you would give some description of that parasite, especially the ones found about Waco.

Mr. HUNTER. There are 15 or 20 different kinds of these parasites. They are minute-winged insects provided with a long ovipositor.

Mr. FIELD. It is sometimes called the "sharp-shooter" there?

Mr. HUNTER. No; it is an entirely different insect, much smaller than the sharp-shooter. They have the natural instinct of placing their eggs upon the bodies of other insects. When the egg hatches the larva of the parasite bores into the weevil (in this case), and later instead of a boll weevil emerging from the cotton plant, we have one or more different parasites which immediately after breeding begin to look after their weevil food upon which to place their eggs.

Mr. FIELD. Does it destroy the weevil in its embryo state?

Mr. HUNTER. In the immature state. It is not in the adult state. These little parasites average less than an eighth of an inch in length. They feel around over cotton squares or bolls until they find one that has a weevil inside. Through some sense they are able to determine whether there is a weevil inside, in many cases where the puncture made by the weevil in depositing the egg has become so healed over that we can not discover it ourselves except by the use of a microscope. Probably the movement of the larva inside there lets the parasite know what is inside.

This parasite then inserts its ovipositor in many cases through the healthy tissues of the square or boll and deposits its egg upon the larva of the boll weevil inside.

As I say, there are 15 or 20 different species of parasites of this kind, very obscure, minute insects which ordinarily would attract very little attention.

Mr. SCOTT. When the egg is deposited, does it mean sure death to the weevil?

Mr. HUNTER. Certain death to the weevil. When the development of the weevil has gone along very near to the end and it becomes parasitized, in some cases then an adult weevil does emerge, but it is weakened and aborted in such a way that it does not amount to very much as a weevil.

The other practical point relating to parasite work that I had in mind is this: In the process of the examination of hundreds of cotton fields and hundreds of thousands of infested squares and bolls all

over Texas, we found that certain squares from certain regions and certain kinds of squares were much more heavily parasitized than others. Ordinarily when the cotton square is stung by the weevil, it falls to the ground, but certain varieties of cotton do not shed their squares as readily as others, and certain conditions of soil and certain conditions of climate cause the cotton plant to hold squares on the plant rather than to let them fall. We found at Waco, for instance, that on these squares hanging on the plants the very highest rate of parasitism was to be found.

In one case as high as 40 per cent of these immature stages in the hanging squares was found, while in the same field the squares on the ground showed a much smaller rate of parasitism. Of course, the conclusion from that observation, which was substantiated in other places subsequently, was that the parties engaged in plant breeding in another bureau of the Department should, if they desire to assist this natural course of events, devote their attention to breeding a variety of cotton that would have the tendency to hold these squares instead of letting them fall to the ground.

Mr. FIELD. Doctor, is not the effect upon the square, when punctured by the weevil, that it destroys the vitality of the cluster in one instance and not in another? It is like a leaf when the sap is destroyed.

Mr. HUNTER. Yes; it is a very mysterious thing. Some varieties of cotton have a thicker bark, and in those cases there is more opportunity for the square to hang than in case of varieties with a thinner bark.

Mr. FIELD. What varieties of cotton? Take the early varieties, the King and Hall, and all those kindred early cottons, and the big-boll Russell, an old cotton. In which character of cotton do you find a greater tendency to retain that punctured square?

Mr. HUNTER. In general we find the greatest tendency in those varieties that have gone out of style a great deal at the present date. The short-stem cluster varieties of cotton, like the old Dixon, that used to be planted a great deal in Alabama.

Mr. FIELD. Is it not true that in those old cottons there was a stronger tendency not only to hold the square but to hold the fruit?

Mr. HUNTER. That is very true, indeed, because the recent tendency in improving varieties of cotton has been only toward productiveness.

Mr. FIELD. The old varieties are being generally rejected as not being sufficiently prolific or early maturing?

Mr. HUNTER. They have, but the boll weevil has altered conditions so much in Texas and Louisiana that planters are now looking back to some of those varieties for assistance. Some experiments show that very good results are going to be obtained.

Mr. SCOTT. Does your experience of the past season, then, give you some reason to hope that the parasite may overtake the boll weevil and eventually rid the country of it?

Mr. HUNTER. We see no reason why these parasites may not have the effect of reducing the weevil's numbers, so that it will not be anywhere near the important factor that it is at the present time. It is beyond the probabilities to expect that they will result in the extermination of the weevil, but for that matter no injurious insect

ever was completely exterminated. It would satisfy the desires of southern cotton planters if the weevil should be restrained by these parasites, even if it were not exterminated.

Mr. SCOTT. None of the parasites has been shown to be in itself injurious?

Mr. HUNTER. No; they are restricted to this habit of feeding in immature stages upon other insects.

Mr. COLE. The fully developed parasite has no other function to perform besides reproduction?

Mr. HUNTER. They take very little food. What food they do take is largely from the pollen of flowers, and in fact none of them throughout the world are known to be injurious to vegetation.

A good many of the same lines of work we have followed previously were conducted by us last year. For instance, there is a constant demand for information regarding how far the weevil has gone, what new regions it is getting into, and how soon it is going to get to some other region. The weevil now extends a distance north and south of nearly 600 miles and over 500 miles east and west. From that area there was, during last season, a migration or dispersion that covered a belt from 10 to 60 miles. The people in the region that is being invaded and the people just beyond are anxious to know how rapidly the weevil is reaching them, how soon they will have to regulate their cropping systems to continue when it does begin its damage. Consequently it has been necessary for us to make examinations, follow this dispersion, and publish maps and pamphlets from time to time indicating what advance has been made. That is a regular line of work that has been carried on for several years, and undoubtedly should be continued.

Another line of work that we have followed, which is one of the old lines conducted for several years, is the testing of remedies proposed from time to time. I made the statement before this committee last year that hundreds of people in various parts of the world are proposing remedies for the boll weevil. We are of the opinion that these remedies should be tested. Many of them can be rejected because of what we know about the life history and habits of the weevil, but at the same time there is no telling when some man may hit upon a good substance in the way of a spray or something of that kind, and the only way to tell whether that does happen is to test these remedies. There are persons working on remedies for the boll weevil in England. I have a couple of correspondents in India, and other correspondents in almost every State of the country. In several instances these persons have come to Texas and have come to our laboratory at Dallas for advice and assistance.

For some years the State of Texas had a standing reward of \$50,000 for the discovery of an effective and economical method of destroying the boll weevil. While that reward was standing and while the commission under it was in existence, we had an opportunity of referring all of these people to the State authorities. Something over a year ago, however, this commission of the State of Texas was virtually abolished. They rendered a final report to the governor, in which they recommended the withdrawal of the reward. Since that time a great many of the people whom we could refer to that commission have come to us, and that makes a very

considerable amount of laboratory work that, on the whole, is growing at this time.

A line of work that is completed is our experiments in the possibility of controlling boll weevils at the gins. In the process of picking cotton and carrying it to the gins a great many weevils are taken along. It has repeatedly been seen that around ginhouses and around seed houses in the plantations the greatest numbers of weevils are found in the spring. In fact, these ginhouses or seed houses frequently serve as centers from which the infestation radiates. It was evident that if some effective means could be found for removing weevils from the seed when it comes to the gin, the important effect of these seed houses and ginhouses in disseminating the weevils in the spring would be reduced.

We first employed a practical gin expert, a man who was a graduate of Liverpool Technical School and had been engaged in the ginning business for fifteen years in Texas. He made a careful study of all the different systems of ginning machinery in use in this country to determine exactly at what points the weevil might be destroyed and at what points under the current system it escapes. It was necessary in connection with that work to run gins experimentally—that is, to feed hundreds and thousands of marked weevils to the ginning machinery at different stages in the process of ginning cotton and make provision for finding out exactly at what point after they were placed in the machinery they were destroyed, in what particular system of pipes or conduits or chutes that happened. That work has been completed. A bulletin has been published on the subject, and the effect has been that many persons in this country have patented devices especially for removing weevils from the seed cotton in the process of ginning. I think in our laboratory we have on file the Patent Office specifications of 15 or 20 devices that have been made as a result of the possibilities along that line that were pointed out when our results were published.

Mr. SCOTT. Are any of these devices found to be effective?

Mr. HUNTER. All of them are more or less effective, and some of them are exceedingly effective.

Mr. SCOTT. Are they being put into general use?

Mr. HUNTER. To my knowledge there are three large gin manufacturers who are making these devices especially at this time.

Mr. FIELD. What is the most approved device, and at what stage in the ginning is it found most practicable to destroy the insects?

Mr. HUNTER. When the seed cotton goes down through the chute to the gin itself within the inner breast of the gin the weevils will make their way to the gin saws, especially in case there is no cleaning device that the cotton has been run through. All the current cleaning devices will help to remove weevils, but the best of these cleaning devices allow weevils to get into the inner breast of the gins. Then in the process of ginning, as these saws are revolving 400 revolutions per minute, they drop down with the seed into the seed chute and are shot through the seed chute to the seed house, where in almost every gin in the infested country great numbers of weevils can be found. They are frequently taken with the seed from these seed houses and put into freight cars and shipped great distances. In fact, it has been a great wonder that no colonies of

the weevil over in Alabama or Georgia have been found on account of this shipping.

The most effective system of getting the weevils out of the seed at that point is a suction device which draws a current of air through that falling mass of seeds with weevils in it. The weevils being a different weight and different size from the seeds can be withdrawn as the seeds drop down into the seed chute. When they do get into this current they are carried through a revolving fan which destroys them or otherwise they are run through a pair of compression rollers and crushed.

Mr. SCOTT. At what stage are the weevils at this time? I mean are they adult?

Mr. HUNTER. The weevils pass their winter in the adult state. There is, of course, no cotton in the winter time, and they develop only in cotton. Consequently they are forced to pass the winter as adults.

Here is an experiment that is under way at present that will go on well toward the end of this year, or, in fact, into the beginning of the next fiscal year. For some time the recommendation has been made that the most effective way of reducing damage by the weevil would be by cutting off the very large numbers that are allowed to breed in the cotton fields in the fall, in many cases after they become so numerous that no more cotton is to be produced.

One of the recommendations, published originally by Doctor Howard as the result of the very first work on the weevil, was that this cotton should be uprooted and burned. That recommendation goes so much counter to the general tendency in cotton production that it has been taken up very slowly. I think Mr. Field will corroborate my statement that in his important cotton-growing region there are very few farmers, indeed, who destroy their stalks sufficiently early in the fall.

Mr. FIELD. Is it not altogether impracticable to destroy cotton stalks at that time of the year, in view of the fact that you destroy a large part of your cotton crop?

Mr. HUNTER. It is not the point to destroy the plants any earlier than such time as the weevils have made it very evident that no more cotton is to be produced.

Mr. FIELD. Still, much of the cotton remains on the stalks unpicked after that?

Mr. HUNTER. That involves another difficulty. That is, the possibility of getting the cotton picked at any time. One of the principal difficulties in cotton production in the South at this time is the scarcity of labor. In many regions they continue to pick cotton where there is any cotton to pick away through the winter season into January or February.

These difficulties Mr. Field mentions are practical ones in the way of following this system. On a large plantation it would undoubtedly be impracticable to carry this out; but in many cases on smaller areas, where a man is not altogether a cotton planter, but has other crops, it would be possible under such conditions for him to destroy the stalks in the fall.

The point is that our data about this matter are not as complete as they should be. We have thought that possibly if we could show more tangible results coming from this work in the destruction of the



plants, the process would be taken up more generally by the planters. It is a matter that requires careful experimental consideration. It should be conducted in an isolated region—that is, all the cotton in a certain region should be destroyed. This season we found a locality on the coast of Texas, in Calhoun County, where there was a colony of farmers who, together, had about 400 acres of cotton. This cotton was growing on a peninsula running into the Gulf and was completely isolated from any other cotton by either water stretches or marsh stretches of 10 or 15 miles.

One of our agents, on finding such a situation there, called the farmers together and made the proposition that the Government would like to carry on a large-scale experiment in the destruction of plants. He succeeded in getting all these farmers together; so under contract they went to work and destroyed completely every vestige of green cotton in their fields the first week in October. The arrangement about paying the farmers was that they should receive a just compensation for the amount of cotton that remained on the plants when the destruction began. That was determined by an appraisement committee consisting of our agent, the individual farmer in each case concerned, and a third party, who was selected for the purpose by all of the residents in that community. So the ground was cleaned up completely in this isolated area.

The CHAIRMAN. How many acres?

Mr. HUNTER. About 400 acres. There can be no confusion in the interpretation of the results next year on account of weevils coming in from other cotton regions. It is too far removed from other regions. Next spring we will have data when the next crop is produced and the weevil observations are made as to exactly what the effect of this process was under such very favorable conditions. If the results are as conspicuous as we suppose they will be, undoubtedly this process of fall destruction of plants will receive a great impetus in Texas.

To add our knowledge along the same line, another series of experiments was started. As the winter is the most critical time in the life history of the weevil, and as that season can be lengthened by the farmer by this fall destruction and by late planting the following spring, it was thought that by a sufficiently early destruction of the plants, followed by late planting the following season, no weevils whatever would be able to survive; in other words, the season would be lengthened too much for them. In order to determine exactly what time the farmer must destroy his stalks completely in the fall to prevent the appearance of weevils the next season we had a series of large cages constructed at a northern, a central, and a southern point in Texas.

These cages consisted of compartments 10 feet square. Into each one of these compartments thousands of weevils were placed. These cages were built over the cotton in the fields. Beginning the 1st of October the plants were removed from one of these compartments. The weevils were left there. A week later the plants were removed from a second compartment, and so on through into December. When those results are followed out next spring, we will have accurate data as to exactly what the farmer in either northern, central, or southern Texas could have accomplished in the destruction of the weevils by removing the plants at any specified date during the preceding fall, at least for that season.

In connection with that same idea of lengthening the hibernation period of the weevil, we performed some experiments this year in late planting. We found four localities where we had practically complete isolation, and saw to it that the plants had been removed carefully from the field the preceding fall. On these areas cotton planting was deferred until about the middle of June. The idea was to see whether any weevils would survive until that time in a practical field experiment.

One of these experimental plantings of 16 acres was located in western Texas, separated from other cotton by at least 10 miles. In that case the cotton was planted on the 10th of June and no crop whatever was produced. The plants grew very well and the weevil was the only factor in cutting down the yield. The weevils had been able to survive this protracted season of hibernation and appeared practically as soon as the cotton plants were out of the ground.

Our experimental work in Texas has been continued on a smaller scale than before. For instance, in Robertson County, near where Mr. Field lives, where before this season we had 100 acres of experimental cotton, this season we cut it down to 50 acres. At another place, Austin, we had 100 acres, which was reduced by half in the same way. In some other places the work was cut out altogether. We considered that it had been conducted long enough in those localities to give us the information we wanted.

In general, wherever work was cut out of any one of these places in Texas where it had been conducted for several years a similar amount of work was established in a new region where the climatic and other conditions made the weevil problem a different one.

Mr. FIELD. Before leaving that question of parasites, I want to ask what conclusion you reached as to the effect of the caterpillar or army worm in destroying the foliage of the plant in the early fall, and what effect it had upon the weevil the next ensuing year?

Mr. HUNTER. We found it had a very decided effect indeed. In fact, we are on the point of recommending that farmers take some steps to encourage these cotton caterpillars.

Mr. FIELD. Is it not a fact that there is more benefit resulting from it than all the other parasites combined?

Mr. HUNTER. Yes; in fact, this cotton caterpillar brings about exactly the result that we would have the farmers bring about themselves by the fall destruction of the plants. The caterpillars remove all the green foliage and cut off the supply of food for the weevils, so that great numbers of them perish. That is exactly what we would have the farmers do by the fall destruction. The fact that the cotton caterpillar does bring about such conspicuous results as it has is the best substantiation for our position that we have ever had. In certain regions in Texas this year the enormous crop that has been produced has been attributable directly to the complete defoliation of the plants by the cotton caterpillar.

The CHAIRMAN. Mr. Field, the cotton crop of Texas this year is the banner crop, is it not?

Mr. FIELD. Yes; it will go approximately to 4,000,000 bales.

Mr. LAMB. Will you please tell us the difference between the boll-worm and the boll weevil?

Mr. HUNTER. The boll weevil, sir, is a beetle, a newcomer in this country, that is gradually making his way up from Mexico. The boll-

worm is the offspring of a moth, a butterfly-like insect that has always existed in this country. The bollworm is the same as the corn worm.

Mr. LAMB. I know that; but what efforts are you making—

Mr. FIELD. Captain, I suggest that you let him complete the boll-weevil problem and the experiments made.

Mr. LAMB. Certainly; but I have been waiting to bring that out just at that point because I have here a brief that has been handed to me that presents the question of the bollworm.

Mr. FIELD. Yes; I had that in mind also.

The CHAIRMAN. Let him finish with the boll weevil first and then take up the worm.

Mr. HUNTER. That covers in a general way the kind of work we have been doing. We have been continuing our laboratory work, because the weevil is changing its habits. It is reacting to the climatic conditions that are found in the different regions it is getting into. It occurs now from an altitude of 2,600 feet above sea level down to sea level and a distance of about 600 miles north and south; also over a region where the rainfall varies from less than 10 inches to a very heavy precipitation—about 60 inches—in the Mississippi Valley. I have a chart here, which I will pass around, that shows the infested area with relation to rainfall in the South. You will see from that chart that the weevil is just about to enter into the region of the heaviest rainfall in the United States—from 50 to 60 inches.

The one natural factor in Texas that has assisted in the warfare against weevils is the dryness that occurs more or less normally through the growing season. The fact that Texas has produced nearly 4,000,000 bales of cotton this year and produced a very large crop last year is in large part due to the favorable climatic conditions for the plant and at the same time unfavorable for the weevil.

Over in the region in which the weevil is just entering, instead of a period of dryness in the growing season, they have more or less continuous rain. The rainfall in general is two or three times as heavy as it is in Texas. That is bound to react upon the weevil and make it a more serious problem for those people than it ever has been for the people in Texas. We are willing to admit that in Texas the problem is a long way toward solution. The present crop produced there demonstrates that; but at the same time we see clearly that in the region about to be invaded the weevil is going to do very great damage. As it advances across the cotton belt it encounters new conditions. These cause changes in its habits.

We can not tell exactly how they are going to react, but, judging by the experience of Texas during wet years, and judging by the experience in the moister portions of Texas compared with the drier portions, there is very great danger in evidence for the cotton planters all through the Mississippi Valley proper, and east of there.

The CHAIRMAN. Have you devoted your energies at all to the cultural methods?

Mr. HUNTER. Very much indeed, as far as the conditions in Texas are concerned. You take the cultural systems controlling the weevil, as recommended. In Texas it will enable the farmer to produce a profitable crop; but that success is largely due to the favorable climatic conditions that prevail there normally. You take the same system in an unfavorable year, a year of great rainfall, and the crop is sure to be short.

Just one word more about the large crop that has been produced in Texas this year and last year. To many people who are not especially posted on the matter this present large production indicates that the weevil has died out and the weevil problem is past. As a matter of fact, the two last seasons have been unusually disastrous for the weevil, both during the winter and during the summer. Both these seasons have witnessed much smaller numbers of weevils in the cotton fields than is normal. Next season, if the conditions are favorable, or in some future season after that, as much damage is certain to be done in Texas as has been done at any time before this.

Mr. FIELD. Is it not true that the increased production in Texas is due, in a large measure, to the increased acreage, especially in the West?

Mr. HUNTER. Exactly.

Mr. FIELD. Where they are exempt, in a measure, from the weevil?

Mr. HUNTER. In many localities in Texas there are hundreds of acres where the boll weevil has prevented the production of any cotton whatever. In east Texas I know large tracts where a cotton sack was never dragged through the fields simply on account of the damage by the weevil. That sort of conditions in eastern Texas and Louisiana has caused an enormous exodus of farmers to western Texas. Many thousands, many train loads, of them are going to western Texas. In many cases they sell or practically give away their land. That has resulted in a complete change in the appearance of a map that would indicate the centers of cotton production in Texas. The whole bulk of the cotton crop has moved a great many miles to the west—out in that high, drier region where the weevil does not do as much damage as it does elsewhere.

The CHAIRMAN. What is the average rainfall of western Texas?

Mr. HUNTER. Along the Pecos River it goes down as low as 5 inches. At Fort Worth it is about 26 inches annually. At Vicksburg it is about 26 inches.

Mr. SCOTT. What is being done in that part of Texas which has been abandoned as a cotton country? Are the farmers substituting any other crop?

Mr. HUNTER. In some cases they are. There is a limited region where they are taking up tobacco. There is a large region where they are going into fruit culture. They have found the conditions ideal for fruit culture; but at the same time very many of them are moving out of the country altogether.

Mr. SCOTT. Just abandoning their places?

Mr. FIELD. That is true, Mr. Scott. In some parts of east Texas you will find much land abandoned. I believe in 1904, after the disastrous year of 1903, one-fourth of the white farmers in the uplands abandoned their homes.

Mr. SCOTT. That is remarkable. I notice by this map that you have the weevil as far north as the southern part of the Indian Territory.

Mr. HUNTER. It has extended about 60 miles into the Indian Territory.

Mr. SCOTT. Do you think it has reached about its northern limit?

Mr. HUNTER. No, sir; I do not think it has. That brings up an interesting point.

The CHAIRMAN. How far north did you say it had got?

Mr. HUNTER. Sixty miles into Indian Territory. It is also across more or less of five counties in Arkansas.

Mr. SCOTT. Do you think it may cover the entire cotton region?

Mr. HUNTER. I do not see any doubt about that at all. I do not see any more doubt about it than that there is going to be greater damage done to other regions than there is in Texas.

Mr. SCOTT. Have you done any work outside of Texas this year?

Mr. HUNTER. Yes, sir; we have four locations where experimental work is being done in Louisiana. The weevil has practically covered the State of Louisiana. In fact it is within 10 miles of the Mississippi River, about 10 miles from Wilkinson County, in the State of Mississippi. The work that was discontinued, as I mentioned a few minutes ago, in Texas was replaced by work in north Texas and Louisiana and in regions in which the weevil was just beginning to make itself felt.

Mr. LEVER. In this region of heavy rainfall you expect the most damage from the weevil when he gets there?

Mr. HUNTER. The experience in Texas indicates that clearly.

Mr. SCOTT. You think it is inevitable, then, no matter what is done, that the weevil will eventually cover the entire cotton producing area in our country?

Mr. HUNTER. I see no escape from that conclusion.

Mr. SCOTT. And the best we can hope for is by cultural methods and by the increase in these parasitical enemies, to lessen its ravages?

Mr. HUNTER. That is the most we can hope for.

The CHAIRMAN. What do you call western Texas? About west of what point?

Mr. HUNTER. About west of Fort Worth and San Antonio.

The CHAIRMAN. West of a line drawn through here [indicating on map] at Fort Worth?

Mr. HUNTER. Yes; at Fort Worth there is an annual rainfall of only about 26 inches, and from that it decreases as you go toward the West.

The CHAIRMAN. How far west?

Mr. HUNTER. You see the Pecos River on the map. There is a great deal of cotton raised there.

The CHAIRMAN. They are successfully raising cotton, then, in three-fourths of Texas? Is that so?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Where was the island you made the experiment you spoke of?

Mr. HUNTER. In Calhoun County, on the coast, about halfway between Galveston and Corpus Christi.

The CHAIRMAN. You say the weevil has arrived within 10 miles of Mississippi and Louisiana?

Mr. HUNTER. Yes, sir; near the southwestern corner of Mississippi.

The CHAIRMAN. Mr. Field, you will have to take another quarter of Texas, that eastern quarter, and put it into some other crops.

Mr. FIELD. But those east Texas men object right seriously to that. I am not in east Texas.

Mr. HUNTER. That is the trouble—the natural conservatism of the southern cotton planters.

Mr. BROOKS. Will cotton grow up in the country toward the Panhandle?

Mr. HUNTER. Yes; there is a great deal of cotton there.

Mr. BROOKS. I thought that was too high.

Mr. HUNTER. That is the region that is helping decidedly in keeping up the production in Texas. A large part of that 4,000,000 bales comes from the Panhandle.

The CHAIRMAN. How far in the Panhandle?

Mr. HUNTER. As far as about Clarendon.

The CHAIRMAN. I did not suppose you could raise cotton up there. Are you sure of that, Mr. Hunter?

Mr. HUNTER. Oh, yes.

The CHAIRMAN. I mean successfully.

Mr. HUNTER. Well, almost as well as they do in Virginia.

Mr. LAMB. They raised it in about three or four counties in Virginia.

Mr. BROOKS. Then there is no reason why they can not raise it in eastern New Mexico?

Mr. HUNTER. None whatever, where they have the water to irrigate it. When you get as far west as that you are beyond the region of sufficient rainfall.

Mr. BROOKS. Do you think the natural result is going to be that eventually the cotton will move west to the drier regions?

Mr. HUNTER. Yes, sir; the center of the cotton production in the United States for the last fifty years has moved by successive steps from the east to the west. At the time the last census was taken the center of cotton production was near Vicksburg, Miss. I think by the time the next census is taken the production of cotton in Texas will carry the center of production far across the Mississippi River, probably well into Texas.

The CHAIRMAN. That is very interesting. I had no idea of that. You say the last census showed Vicksburg as the center of cotton production?

Mr. HUNTER. Yes, sir; the center of production was 12 miles north of Vicksburg. It had moved for several census periods up to that time an average annual distance of 50 or 60 miles westward.

Mr. FIELD. Cotton is a dry-weather plant, and it takes very little rain to make a crop of cotton.

Mr. HUNTER. Yes, sir.

Mr. HENRY. Has this imaginary center reference to the area, or the amount of cotton produced?

Mr. HUNTER. The cotton produced. It is the point where all the cotton produced would balance.

Mr. HENRY. It does not have reference to the distance?

Mr. HUNTER. Not at all. It is simply where the weight of all the cotton produced would balance.

Mr. LEVER. I hardly see how that is possible.

The CHAIRMAN. Have you any quarantine regulations of any kind to try to prevent the weevil crossing the Mississippi?

Mr. HUNTER. No, sir; we found cases where the weevil has, by flight, covered much larger stretches than across the Mississippi River. In one case we have very definite evidence that a distance of 25 miles was covered by flight.

The river is not a mile wide at Baton Rouge, and consequently we do not see why the weevil would not get across by flying. Even if he did not get across by flying there are hundreds of ferries, little one-boat ferries between New Orleans and Memphis, that are carrying farm products back and forth, and that would give easy access. It is true that in the case of our current appropriations, as in the case of other appropriations, we have set aside a certain amount of money, about \$5,000 in the case of the present appropriation, to be used as an emergency fund in case isolated colonies of the weevil should be found far in advance of the natural area of spread. There has always been a probability that weevils would be found over in Georgia and South Carolina. They could easily be transported that distance in cotton seed or in any other farm commodities, and a large colony might get started and bring the trouble of the boll weevil to the people of South Carolina, for instance, ten or fifteen years before it would naturally reach them. The normal rate of spread by flight is about 40 or 50 miles a year. In case any of these colonies are found, which we suspect may be found at any time, it is our plan to use this reserve fund in an attempt to eradicate them. We have a precedent that seems to indicate it would be feasible to bring that about. A small colony was eradicated at Audubon Park, near New Orleans, several years ago.

Mr. LEVER. You stamped that out?

Mr. HUNTER. That was stamped out completely.

The CHAIRMAN. The Department has just handed in a supplementary estimate asking that this appropriation be increased from \$82,500, which it was last year, to \$150,000.

Mr. HUNTER. I think, Mr. Chairman, that refers to the gypsy-moth appropriation, does it not, and not to the boll-weevil appropriation?

The CHAIRMAN. I beg your pardon; that is right.

Mr. FIELD. Mr. Chairman, I would like to direct the gentleman's attention to one or two thoughts in the line of his experiments that I do not think he has touched on yet before the committee. He has mentioned the work done in destroying the plants and studying the weevil, but he has not mentioned anything of his experimental farm work and what purpose he has in mind in that.

The CHAIRMAN. That comes more under the Bureau of Plant Industry, does it not?

Mr. HUNTER. No, sir; the work of the Bureau of Plant Industry and our work is very clearly separated.

The CHAIRMAN. Experimental farming comes under the Bureau of Plant Industry, does it not?

Mr. HUNTER. No, sir; the demonstration farming does. The origin of the demonstration farm of the Bureau of Plant Industry is simply this: When it became evident that the boll-weevil problem was one of national importance, the Secretary of Agriculture took a trip to Texas, and saw that the most urgent need was to bring home to the people there exactly what knowledge was in existence about controlling the insect at that time. While the publication of bulletins had good results in some quarters, it did not have anywhere near the effect that demonstration of the methods would have in any one locality. So this large series of demonstration farms was begun,

which started with the knowledge that has been obtained by us and illustrated on these sample farms, as Doctor Knapp calls them. That policy has been followed for several years.

Mr. BROOKS. Even then, in the case of an evil so radical as the cotton-boll weevil, you could not successfully bring the knowledge of the Department home to the farmer by means of bulletins?

Mr. HUNTER. Within certain limits that is absolutely true.

Mr. BROOKS. In other words, you have to supplement it by the actual visual test?

Mr. HUNTER. Yes, sir.

Mr. FIELD. The demonstration work—the experimental work?

Mr. HUNTER. Ours is the experimental work upon which Doctor Knapp draws for information, and details as to what lines shall be followed in these demonstration farms of his that come later. Ours are strictly experimental, and only incidentally demonstrational. In the case of the farms with which you are familiar, those of Doctor Knapp, they are absolutely demonstrational, and are not experimental, except incidentally.

In these experimental farms we plant different varieties of cotton. The different plots are treated in different ways, fertilized in different ways, given different systems of cultivation, and we keep a very accurate record of everything the weevil is doing in those different blocks. We have, consequently, statistics showing exactly how infestation by the weevil has increased in each one of these blocks, and we know, consequently, what it was in the particular treatment of that block; whether it was variety or something else that brought about any checking in the progress of the infestation. That work is of the same nature as other field work. It gains value as it is continued through a series of years. In addition to that reason for carrying this experimental work on, there is this other one, that the weevil is changing its habits very materially. That is illustrated forcefully by the state of affairs along the northern border. The weevil has attempted, so to speak, to cross into Indian Territory for three years. For three years isolated colonies have been found along the Red River, but the cold of the winter checked each one of these isolated colonies and caused the infestation to go southward. Nevertheless this last season the weevil had acquired so much ability to withstand the conditions up there that it passed successfully through a less severe winter, on the whole, than had previously stopped it, and made a big jump of 60 miles into Indian Territory.

The CHAIRMAN. They get acclimated, as it were?

Mr. HUNTER. Yes; it is a continual struggle. The weevil is in conditions absolutely abnormal to it. It is acclimating itself, and gradually acquiring the ability to get along anywhere the cotton will grow.

I think, Mr. Chairman, that covers the main points of the work.

Mr. FIELD. Doctor, you have given us no information about the work done in the destruction of the bollworm.

Mr. HUNTER. No, sir; I am ready for that, though, if you are.

Mr. FIELD. Yes; I would like you to state that.

Mr. HUNTER. The bollworm is an insect that has received a good deal of attention in this country. Since the work has been done on the boll weevil on a large scale in Texas, it has seemed advisable to in the Department also to look into the bollworm. In certain re-



gions in northern Texas and Louisiana I have seen fields where not a pound of cotton was produced, merely on account of the ravages of the bollworm. These cases were in regions where the boll weevil did not occur. In general these regions of bollworm damage are north of the present area infested by the boll weevil, but at the same time outbreaks of the bollworm occurred in the weevil territory. The result of that is that we have superimposed upon the weevil damage the damage by the bollworm, and we have consequently thought it was within our authorization under the appropriation to do something with the bollworm.

For the past two years we have had experimental field work at a number of localities in north Texas—at New Boston and Greenville—and Ardmore, in the Indian Territory.

At these places we have tried methods in the cultivation of the crop that had been found useful in weevil regions, because a very important point is to fight the two insects at the same time if it can be done with the same methods.

In addition to the cultural methods, that work practically as well against the bollworm as they do against the weevil, there are other things that can be done against the bollworm. For instance, very good results can be obtained by poisoning for the bollworm, and poisons have no value whatever in fighting the boll weevil.

Mr. SCOTT. Where are the eggs which produce the bollworm deposited?

Mr. HUNTER. They are deposited promiscuously all over the plant—the leaves, the stems, the bolls, and the squares.

Mr. SCOTT. Why can they not be reached by a spray, then, just as the eggs of insect enemies of the orchards are?

Mr. HUNTER. A great many of them are. If the farmer can poison at the right time he can get a very large percentage of them.

The CHAIRMAN. Do you poison the egg or wait until it is hatched?

Mr. HUNTER. After it is hatched. As soon as it hatches, the larva begins to feed slightly on the leaf, and travels slowly to a square or boll that it bores into. If the poison could be applied before they get into the boll, of course the worms can be killed. Otherwise it is practically useless.

Mr. FIELD. How is it possible to apply poison to the bollworm, that invariably deposits eggs in the square?

Mr. HUNTER. I think we must be talking about different things, because the eggs of the bollworm are deposited on the cotton leaves, sometimes on the stems, and sometimes on the squares. The bollworm moth has no apparatus at all which would enable it to deposit its eggs inside the square or boll.

Mr. FIELD. That is the worm we usually regard as coming from the corn?

Mr. HUNTER. It is the same insect.

Mr. FIELD. You are satisfied of that?

Mr. HUNTER. Yes, sir; that has been determined by breeding them. The trouble about the application of poison in that case is that all these eggs are not deposited at the same time. Moths are continually coming through the season into the cotton fields, from the cornfields or elsewhere, and the farmer by poisoning at a certain time might destroy a small percentage, but at the same time other moths would be there the next day, other eggs would be deposited, and a

few days later the larvæ would hatch and another application of poison would be necessary. In fact, it would be absolutely necessary to keep a pretty good coating of poison on the plants to have any considerable effect on the bollworm.

Mr. LEVER. I understand Mr. Sheppard, of Texas, has introduced a bill to increase that appropriation, has he not, Mr. Field?

Mr. FIELD. I believe so. He handed me a short brief that I wanted to put in the record.

Mr. LEVER. Doctor, has the Department any estimate for increasing the appropriation for the bollworm?

Mr. HUNTER. No provision has been made for it in the estimates. Undoubtedly we could do more work on the bollworm than we have been doing, and we have considered it was only proper to make the bollworm work secondary to the boll-weevil work.

Mr. SCOTT. Have you fought the bollworm in any other way than by cultural methods and poison?

Mr. HUNTER. Some little work has been done with trap crops. We found, for instance, that the bollworm moths will deposit their eggs on corn and pass by cotton. By planting corn at regular intervals during the season so that corn in the silk is in existence for some little time, the moth will deposit its eggs there instead of going to the cotton. That gives an opportunity to poison the corn and destroy the worms there, or to go over it carefully with a knife, which can be done economically if the labor conditions are right, and merely mechanically destroy the worms that are there.

Mr. FIELD. Have any of these experimental farms been used for the purpose of studying the habits of the bollworm?

Mr. HUNTER. Yes; the investigation of the life history of the bollworm is going right along in connection with this farm work.

Mr. SCOTT. Are you prepared to give us a financial report, or does some one else in the Department have direct charge of that?

Mr. HUNTER. I am charged with the experiments from the boll-weevil appropriation. I have not a definite statement with me to-day.

Mr. SCOTT. Can you tell us roughly how much the work for this year will cost? Will you expend the entire appropriation?

Mr. HUNTER. When we consider the current letters of authorization, you must understand we have only passed the middle of the fiscal year.

Mr. SCOTT. I understand that.

Mr. HUNTER. With the contracts and orders that are out, and letters of authority that are charged against the appropriation, and this reserve, the appropriation will practically be used. There may be a surplus of \$6,000 or \$8,000 altogether.

Mr. SCOTT. I see the same amount is estimated for the next year. Is it your judgment that that amount can be economically and properly expended, or have you completed certain lines of investigation to such an extent as to warrant you to abandon further work on them?

Mr. HUNTER. I believe the same amount could be expended to very good advantage. While it is true that certain lines of work have been closed up, that certain work has been completed, and there is no necessity for continuing it, at the same time, while the area infested increases and as the weevil reaches new regions where the conditions are different, entirely new problems come up. So as a

matter of fact, I should say, that while we can drop one line of work, we have two other lines of work that we could legitimately take up.

Mr. HAUGEN. What lines of work have you completed, and what have you accomplished?

Mr. HUNTER. We have, for one thing, made a study of the life history of the weevil, and published a bulletin giving the knowledge that we had acquired in that way up to date. Another point has been the demonstration of the inadequacy of a great many remedies that have been proposed. Another has been in a study of the possibility of controlling the weevil at gins.

The CHAIRMAN. Then it is your judgment this appropriation will have to be a continuous appropriation?

Mr. HUNTER. As long as there is more danger ahead of us, Mr. Chairman, than there has been in the past, I think the appropriation should be continued. It is our opinion that the most serious situation is the one ahead of us. As to what is going to happen in the moist regions in the eastern part of the cotton belt, we can not say that the outlook is at all hopeful.

Mr. SCOTT. Is it not true that this weevil is supposed to come from Mexico?

Mr. HUNTER. It has been well established that its original home was in Central America or southern Mexico, in some of the high plateaus in that part of the country.

Mr. SCOTT. It seems established that it thrives better in a wet than in a dry climate?

Mr. HUNTER. Clearly; yes, sir.

Mr. SCOTT. That is the reason you anticipate more trouble from it when it gets farther east?

Mr. HUNTER. Yes, sir; that is the situation exactly.

In conclusion, Mr. Chairman, it looks to us, in the Department, that we still have a great problem on our hands. The situation in Texas, as I have said, is comparatively clear. The outlook is hopeful. But the danger is in the regions that will be invaded. The people are taking up with the work; and at the laboratory in Dallas during the last season we have had repeated delegations of planters, bankers, and business men in general from Louisiana and east of there who have come to look into the boll-weevil problem to find out what the prospects of damage over in their regions are. There is going to be a continuance of that demand for information, and we think we should be there to supply it as nearly as we can.

It is impossible to make an estimate of the money damage done by the boll weevil. But I think a very conservative estimate for the past year would be in the neighborhood of \$20,000,000 to \$25,000,000. Some estimates have been made by cotton people in Texas which run much higher than that. I do not know of any that run lower than about \$20,000,000. This \$85,000 appropriation which is estimated for I think is three-tenths of 1 per cent of that amount of damage for one year. In view of that relation, and in view of the outlook for the future in the Department, we think a continuance of the work would be well justified.

Mr. LEVER. You think, then, the boll weevil has destroyed 500,000 bales of cotton in Texas this year, or something like that?

Mr. HUNTER. At \$50 a bale?

Mr. LEVER. I average it at \$40 a bale.

Mr. HUNTER. In that neighborhood.

Mr. SCOTT. Have you been doing any work in collaboration with the State authorities?

Mr. HUNTER. Yes, sir; in Louisiana they have a crop-pest commission. We have appointed several men who are joint agents of our Bureau and of the crop-pest commission. In fact, everything we do in Louisiana is done in cooperation with the crop-pest commission there. In Texas, in view of our large special investigations of the boll weevil, we have turned over many matters in relation to minor cotton insects to one man we have appointed, who is detailed to a college station and resides there permanently.

The CHAIRMAN. How much money has Texas spent in aiding this work; do you know?

Mr. HUNTER. Very little. For two years or such a matter the State of Texas had a special appropriation for the weevil and provided for the salary of Professor Mally who was an entomologist. I imagine in his work \$25,000 or \$30,000 was expended.

The CHAIRMAN. By the State?

Mr. HUNTER. Yes, sir; in addition to that there was this \$50,000 reward, and the commission under it.

The CHAIRMAN. That reward never was paid out?

Mr. HUNTER. That reward never was paid, but the tests that were conducted by the commission took some of the money. I think it was \$2,500 or \$3,000.

The CHAIRMAN. That is all out of the \$50,000?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. How long has our Government work been going on under these special appropriations?

Mr. HUNTER. I went to Texas under the first appropriation of \$5,000 in 1901. It was an appropriation for the fiscal year 1902.

The CHAIRMAN. 1902-3. That is four or five years the Government has been spending each year an increasing sum, practically?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. It has increased from \$5,000 to \$85,000, besides what we have given to the Bureau of Plant Industry. The Bureau of Plant Industry has for this same purpose \$105,000 and you have \$85,000?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. That is \$190,000.

Mr. HUNTER. Yes, sir.

Mr. SCOTT. What was your appropriation last year?

Mr. HUNTER. Last year the appropriation was \$85,000.

The CHAIRMAN. The same as this year?

Mr. HUNTER. The same as estimated for the coming year.

Mr. SCOTT. Did I understand you to say the State of Texas had discontinued its appropriation for this work?

Mr. HUNTER. Yes. There is no special appropriation at this time.

The CHAIRMAN. They depend entirely on the National Government?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. I was going to ask if you knew why they had discontinued it, whether they thought the experiment was not warranted by the results, or whether they thought the Government was doing all that could be done?

Mr. HUNTER. I think the latter is the explanation. In view of the large scale of work that was being done by the Government, with governmental facilities, it was unadvisable for them to undertake work of the same kind, which they would be forced to conduct on a smaller scale.

The CHAIRMAN. The bulk of this work and this money has been expended in Texas?

Mr. HUNTER. Yes, sir; the large majority of it; because until recently Texas was the only State that was attacked by the weevil.

Mr. HAUGEN. Are any of the other States doing anything at their experiment stations in this line of work?

Mr. HUNTER. The work of the Louisiana crop-pest commission is virtually at their experiment station. The secretary of the crop-pest commission is entomologist of the station, and the appropriation is made through the State.

Mr. HAUGEN. If the work is of the importance you think it is, and we should cut off the appropriation, do you think each State would feel it important enough to make appropriations and do something for themselves? Do you think they would regard it as of enough importance to warrant the appropriations?

Mr. HUNTER. I think some of the States would and some of them would not. The statute books of practically all of the Southern States have boll-weevil laws, and some of them are making appropriations at this time.

Mr. HAUGEN. About how much, each State?

Mr. HUNTER. In Mississippi there is an appropriation of \$15,000. I suppose altogether \$40,000 or \$50,000 is appropriated; perhaps hardly as much as that.

Mr. HAUGEN. Do you understand then that all of the States make appropriations?

Mr. HUNTER. No; some do not. In Arkansas, that is about to be invaded, there is no appropriation.

Mr. LEVER. But only about four of these States are immediately threatened. Is not that true?

Mr. HUNTER. Of that estimated amount of \$40,000 or \$50,000 at least 75 per cent of it is in the case of three States.

Mr. BROOKS. What are those?

Mr. HUNTER. Louisiana, Mississippi, and Alabama.

The CHAIRMAN. In your opinion, if these improved cultural methods were adopted in Mississippi, Alabama, Georgia, and the other cotton States, would it retard the advance of the cotton boll weevil?

Mr. HUNTER. It would not retard the advance of the weevil, but it would place the farmers in a condition to make better crops when the boll weevil reaches them.

The CHAIRMAN. Of course after he reached there he would not travel as fast if he met with improved cultural methods?

Mr. HUNTER. Well, it is to be expected he would not travel quite so fast, but I do not think there is an appreciable quantity in there at all.

Mr. SCOTT. Are not farmers pretty generally adopting these methods?

Mr. HUNTER. Very generally, indeed. They have been taken up

through commercial organizations. The Dallas Commercial Club has done a great deal, and other commercial clubs.

The CHAIRMAN. Do you know of any move of that kind that is being made east of the Mississippi in the cotton States there?

Mr. HUNTER. Not that I know of.

The CHAIRMAN. Do you not think the Department ought to disseminate some literature on that subject as to the advisability of taking up these better cultural methods?

Mr. HUNTER. We have done that.

The CHAIRMAN. Have none of the commercial bodies made any move of that sort? Have the commercial bodies in those States east of the Mississippi made any move?

Mr. HUNTER. They are doing it, and individuals here and there, bankers and others, are taking an interest in it sufficient to send representatives to Texas, to travel slowly through the infested area and find out exactly what the conditions are. It is true, though, that the past two years, witnessing a very large production in Texas, have rather had the effect of minimizing the seriousness of the problem in the minds of the people in the eastern part of the belt.

The CHAIRMAN. Very naturally.

Mr. HUNTER. I think, Mr. Chairman, that is all I have to say at this time.

The CHAIRMAN. Let me ask you this. If they stopped producing cotton entirely and produced another crop, would the boll weevil disappear?

Mr. HUNTER. Yes, sir; because there is no other food than the cotton.

The CHAIRMAN. And I think Mr. Galloway told us they had not yet found a resistant cotton?

Mr. HUNTER. No, sir; they have some indications of good results along that line. Undoubtedly a great deal can be accomplished, but it is doubtful whether an absolutely resistant variety of cotton will ever be found. We tested the sea-island cotton, Japanese cotton, and all the various varieties grown in this country—60 or 100 of them.

The CHAIRMAN. In 1867, when the wheat weevil destroyed our crops in the North, we took up the bearded wheat, what we called the Mediterranean red wheat, and grew that for two or three years and the weevil disappeared. Now and then we get a little trace of it, but it does not do any damage from a commercial point of view.

Mr. HUNTER. The boll weevil is the most conspicuous example of the fact that injurious insects do not all pass away expeditiously. In the Brownsville region the weevil has been in the cotton fields since about 1892. There has been great fluctuation in the number of weevils in that region on account of the different climatic conditions in different years. Sometimes large crops have been produced, as large as they ever produced before the boll weevil came into the country; but with favorable conditions for the boll weevil again, it has been our experience in that country that the numbers have come up once more. So, on the whole, it is true that in the region that was first invaded in this country the boll-weevil problem is as serious a one now as it was then.

The CHAIRMAN. At the present time is there any weevil which is attacking the wheat crop?

Mr. HUNTER. Not that I know of.

**STATEMENT OF C. L. MARLATT, BUREAU OF ENTOMOLOGY.**

The CHAIRMAN. Now we will hear you, Mr. Marlatt, on the gypsy moth. You may tell us what progress you have made. I believe this is the second year, is it not? It is the first year of the appropriation of any amount.

Mr. MARLATT. It is the second year, but the first of large appropriation. The gypsy-moth and the brown-tail moth problems are two separate items, and while often confused they must be considered separately, because they present entirely different problems. The gypsy moth is something that can be controlled by direct operations. The brown-tail moth is an insect which can not be controlled except indirectly—that is, that can not be controlled in its general spread except indirectly by parasites.

The CHAIRMAN. Then the brown-tail moth is the most dangerous?

Mr. MARLATT. In some respects the brown-tail moth presents greater danger than the gypsy moth. The brown-tail moth flies in both sexes, and may be carried by winds a distance of 100 miles in a day or two. The gypsy moth, or the female, which lays the eggs, can not fly, or, at least, it can only flutter down in an oblique direction from the tree to the ground, and hence of itself can only move a few rods, even with a favoring strong wind.

The CHAIRMAN. Does she lay the eggs where she alights, or does she travel some distance on the ground?

Mr. MARLATT. Only a few feet. She usually climbs up the trunk of the nearest tree and lays her eggs on the tree or on the ground, or on a stone wall, but usually on some elevation which is found a little above the ground. The funds appropriated by Congress have been directed against the gypsy moth. The Department has been doing a lot of work with the introduction of parasites, but that has been on money provided by the State of Massachusetts. Thirty thousand dollars was appropriated by the State of Massachusetts for the introduction of parasites. This was divided into three lots of \$10,000 each, to be spent over three years. Doctor Howard on this sum has made two trips to Europe, and has started the machinery of collecting parasites over there in a great many different places, and with extraordinary success.

Mr. SCOTT. These are parasites for the brown-tail moth?

Mr. MARLATT. They are parasites for both. Parasites have been introduced in Massachusetts now during two winters.

The CHAIRMAN. The parasite in Europe has kept them in check, has it?

Mr. MARLATT. Yes, sir; both of these insects in Europe are minor pests, because the parasites are there effective and abundant. In this country the same conditions occur as with the boll weevil. The parasites were left on the other side when the moths were brought over, and it has been necessary to make an attempt to bring the parasites over to do the work here which they are doing and have done for hundreds of years in Europe and in Asia.

A vast quantity of parasitized material was shipped to this country and taken to Boston. For example, one hundred and thirty-odd thousand nests of the brown-tail moth were sent to Boston.

Mr. SCOTT. Where were those nests found?

Mr. MARLATT. Those nests were collected in France, Germany, Italy, Switzerland, and Hungary.

Mr. BROOKS. And the nest was supposed to contain the parasite?

Mr. MARLATT. These nests were the winter colonies of the brown-tail larvæ, and many of these larvæ are parasitized, so that we import the whole nest, and keep the nests in cages in the woods near Boston and breed the parasites from these nests, sometimes hundreds from a single nest.

Mr. SCOTT. What is the character of the parasite?

Mr. MARLATT. The parasite is a very minute insect. These parasitic insects all belong to the same family; for example, as the parasites of the boll weevil, which was discussed a moment ago. They are very minute insects, which live in other insects and have no other food habit. If they do not find insects of the special kind which they parasitize, they perish.

Mr. SCOTT. They are winged, are they?

Mr. MARLATT. They are winged.

Mr. SCOTT. Speaking generally, there would be no danger to any other domestic industry or product by the introduction of these parasites?

Mr. MARLATT. There is no danger whatever from these parasites. The one point that must be looked out for is that these parasites themselves have other parasites, and in introducing the first we do not want to liberate the second. Hence the imported parasites are bred in wire-proof cages, and the insects which are bred are very carefully examined before they are liberated by experts who know the difference, and only the beneficial ones are liberated, and what are called secondary parasites—that is, the parasites of the first parasite—are destroyed.

To introduce the parasites of the gypsy moths the worms themselves, or the chrysalids, were shipped over in large quantities, and a great many parasitic insects were secured from them. We have also introduced in large quantities predaceous beetles, which are common in the woods of Europe, and which live on the caterpillars of the gypsy and brown-tail moths and other caterpillars. These have all been liberated in the vicinity of Boston. Some of the parasites, by thousands, even hundreds of thousands, have been bred there and the outlook is very hopeful. In other words, we are finding these same parasites now working in the woods freely in the moth colonies where they were liberated, and the experiment has been followed long enough now to show that they will pass the winter safely in this country.

The CHAIRMAN. They will stand our climate?

Mr. MARLATT. They will stand our climate and will succeed in breeding throughout the year. When they were first introduced it was a problem whether the gypsy moth alone or the brown-tail moth alone would furnish the food for them. We did not know but that in Europe they might live, say, three months of the year on the brown-tail and then on some other moth that we do not have here, and there was the risk that after that first three months they would perish here. But we have found they can pass the year on these two moths, the more important of the parasites, and hence the outlook is very hopeful. The practical results are not yet forthcoming. The experiment is in its infancy. We know enough of parasitic work,



however, to believe that when these parasites become fully established they will do as good work here as they are doing in Europe. In point of fact, they ought to do better work, because in Europe they have the check which comes from the secondary parasites, which we are attempting to keep out.

Mr. HASKINS. Do not those parasites breed after being liberated, and do they not produce some of these secondary parasites you want to destroy?

Mr. MARLATT. No; the parasite only produces its own kind. The secondary parasite is a different species of insect.

Mr. BROOKS. As we understood it last year, the appropriation this committee made was to be used largely in quarantine work, and the State of Massachusetts was going to confine itself to the parasitical and local work. Is that the way the work has been conducted?

Mr. MARLATT. That is it exactly.

The CHAIRMAN. Suppose you give the committee an account of the practical work done.

Mr. MARLATT. The work in Massachusetts is divided now between the State appropriation—the State having made an appropriation a year ago of \$300,000—and the appropriation by the National Government of \$82,500, and the special appropriation by the State of Massachusetts for parasitical work, which was turned over to the Department of Agriculture for expenditure under the direction of the Entomologist. The \$82,500 which was appropriated by the National Government is being expended, as you state, in quarantine work.

The work is being done along the main highways, where the pest is carried by wagons, automobiles, and street cars, and the isolated colonies are being taken care of by the Department of Agriculture, and the infested highways are being taken care of. The underbrush is being cleaned up on each side of the road where the larvæ would obtain lodgment.

Mr. BROOKS. How far west does your work extend?

Mr. MARLATT. The gypsy moth covers the eastern quarter or nearly the eastern third of the State. It extends from Westboro County to the coast.

Mr. BROOKS. How much is there in Westboro County?

Mr. MARLATT. Naturally the periphery is scatteringly infested, but there are important colonies in or adjoining Westboro County. There are important roadside infestations.

Mr. BROOKS. I think whoever was here last year said they had appeared in northern Connecticut and Rhode Island, along the line of the railroads and roadways, and some in New Hampshire. Have they spread into these adjoining States?

Mr. MARLATT. The gypsy moth has crossed the line into the southern counties and into the coast county of New Hampshire, and the western and southwestern counties in Maine have a scattering of sporadic colonies. There is one colony only in Connecticut, at Stonington, which is being handled by the State authorities.

Mr. BROOKS. That is entirely isolated?

Mr. MARLATT. That is entirely isolated; and a small colony which is being handled very vigorously by the State entomologist, under our inspection.

The CHAIRMAN. Under an appropriation by the State of Connecticut?

Mr. MARLATT. Under an appropriation by the State of Connecticut.

The CHAIRMAN. How much; do you know?

Mr. MARLATT. I do not know the amount.

The CHAIRMAN. What is Maine doing along the same line? Is she working on the same line as Connecticut, on isolated colonies?

Mr. MARLATT. Maine has not taken up the work except as an adjunct to the ordinary work of the station or the State entomologist. I do not think there has been a special appropriation for the work in Maine. The insect is just getting into Maine. We have done scouting work in Maine.

The CHAIRMAN. Last year they asserted pretty positively that the insect was in Maine. I think you said so, Mr. Roberts.

Mr. ROBERTS. The brown-tail moth.

Mr. MARLATT. The brown-tail moth has been there some time.

Mr. BROOKS. It is the brown-tail moth that flies?

Mr. MARLATT. It is the brown-tail moth that flies.

Mr. BROOKS. When you were speaking of the locality in which the insect had worked its way, were you referring to the brown-tail or the gypsy moth; for instance, in Westboro County?

Mr. MARLATT. I was referring to the gypsy moth.

Mr. BROOKS. Has the brown-tail moth worked farther west?

Mr. MARLATT. We do not know the exact limits of the brown-tail moth. The tendency of the brown-tail moth is to work toward the northeast, and its spread southward and westward has been slow. I doubt if it is much farther south than the gypsy moth, although I have no recent data on that point. The data for this summer have not yet come in.

Mr. BROOKS. What is the reason for that?

Mr. MARLATT. The reason is that the prevailing winds at the time of flight are in the direction of the northeast, and the wind is the controlling factor.

The CHAIRMAN. What time of the year does he fly, Professor?

Mr. MARLATT. About the 1st of July.

The CHAIRMAN. In the summer winds?

Mr. MARLATT. Yes; in the summer winds. The flight is in the early part of July.

Mr. SCOTT. Would you describe a little more in detail the work you are doing? You had just started, in response to the chairman's question, to describe the work you were doing along the highways. This consists of clearing up the brush, you say?

Mr. MARLATT. The work is divided. The State of Massachusetts having appropriated the larger sum, and a much greater sum still than that being spent by the towns and individuals, the entire charge of the inner extermination work was left to the State. We have taken charge of the scouting work, to determine the extent of infestation, and the clearing up of the main highways. The latter includes the cutting out of underbrush and clearing the forests to a considerable distance on each side of the roadway, so that the gypsy moth infestation, which is normally very near the edge of the road, can be easily determined and the winter work mapped out on the destruction of the egg masses, by which means the insects are stamped out and the spread checked.

This road work and the scouting work and the destruction of isolated colonies are being done under the national appropriation. It covers an enormous area along the periphery of infestation in Massachusetts. It covers also some work in New Hampshire and some work in Maine. The work in New Hampshire and Maine has been minor—in Maine chiefly scouting.

Mr. SCOTT. Just what do you mean by scouting?

Mr. MARLATT. Sending men who are familiar with the gypsy moth along the roads and through the counties adjacent to those known to be infested to investigate the probable extension of the moth, following out the probable lines of extension from any infested center along the main highway and all the important highways that intersect it to determine the infestation, if possible, at its very outset, when it can most easily be checked.

Mr. SCOTT. When that determination is reached in respect to any given locality, what do you do? What is your next step?

Mr. MARLATT. The next step is to follow out the ordinary methods of control which long experience with the moth has shown to be most effective. For example, the clearing out of the underbrush. You can see that in a dense mat of underbrush it would be impossible to do anything in the way of work with insects.

Mr. SCOTT. How far back from the picket line do you clear out the underbrush?

Mr. MARLATT. For a distance of 100 or 150 feet, or sometimes more.

Mr. BROOKS. Do you do any of the spraying and painting of the trees, or do you leave that to the local people?

Mr. MARLATT. In the case of this roadside work on the periphery and the isolated colonies, we do all of the work.

Mr. BROOKS. Which is the more effective, painting or spraying?

Mr. MARLATT. The most effective work is the winter work with the egg masses. I suppose this subject has been discussed before your committee a great many times and you are probably familiar with the habits of this insect. The female moth when it climbs up the tree deposits its eggs in one mass nearly as large as a silver dollar, and this mass is covered with the felted hairs from its own body, so that it makes a conspicuous yellow patch on the tree which can be seen at a distance of several rods when the leaves are off; and these yellow patches are usually within reach, or at least can always be reached by ladders. It is a simple matter in winter to go through a properly cleared up woodland or along a properly cleared roadway and daub each one of these masses with a little creosote; and one daub will kill all of the eggs.

The CHAIRMAN. That is what is going on now?

Mr. MARLATT. Yes. One daub will kill the three or four hundred eggs that are in each one of these masses. If this has not been done, and the outbreak is found in the growing season, there is nothing to do but to spray the trees with a poison. That of course is more expensive and less effective. Then, there is the handling method, which catches the larvæ as they come down from day to day for concealment.

Mr. HASKINS. You are also doing some work in Rhode Island, are you not?

Mr. MARLATT. Yes, sir; I was coming to that. We are assisting in the work in the city of Providence, which is pretty generally and

extensively infested. The only work we are not giving direct financial assistance to is that in Connecticut.

The CHAIRMAN. Do you know whether you have completely stamped out any isolated spots? Have you succeeded in doing it?

Mr. MARLATT. It is too soon to determine that. The work has only been going on one year, and this work must be followed up for one or two years; that is, the observation or inspection of these spots must be followed one or two years to make sure that individuals have not escaped. Isolated spots were stamped out in numbers in the early work of the State of Massachusetts, showing that it can be done.

Your chairman asked me to say something about the work being done by the State of Massachusetts, with which we are cooperating. The State of Massachusetts, in its earlier appropriations, undertook to do all the work for the people and the towns. In other words, the entire cost of the work was sustained by the State appropriation. When the work against the gipsy moth was taken up again, it was decided to divide the cost of the work between the State and the towns and the individuals, so that there would be a local town interest and an individual interest in its conduct. The State made the appropriation of \$300,000, to be spent over a period of three years.

The CHAIRMAN. Three hundred thousand dollars, did you say?

Mr. MARLATT. Yes, sir. The towns were required to spend a sum proportioned on their assessed valuation.

Mr. BROOKS. That is, in addition to the \$300,000?

Mr. MARLATT. In addition. They must spend that in clearing up the streets and parks and parkings and land that properly belongs to the care of the city or town. The individual owner must also spend a certain proportion of his assessed valuation for the eradication of the insects on his own premises.

Mr. BROOKS. Will you tell us how it would be possible to do any effective work along that line in those wooded sections of the western central portion of the State? How could a man go into a wood lot, for instance, and, with the few dollars apportioned to that wood lot, do any work at all?

Mr. MARLATT. The whole object of the law is to prevent any man expending more money than the land can afford, or a higher tax than is legitimate; in other words, not to impoverish the citizen. In fact, if a citizen is shown to be too poor to pay his own moth bill, he is not required to do so. This small sum that is assessed, that he must spend, is spent, and if that is not sufficient the State pays the rest. In the case of a wood lot, if a man has spent this small sum—say, one-half of 1 per cent of the assessed valuation—the State pays the rest.

Mr. BROOKS. Then the owner simply contributes his mite?

Mr. MARLATT. The owner contributes.

The CHAIRMAN. He contributes what he can afford to?

Mr. MARLATT. Exactly. In the case of a city lot this amount is usually ample. In point of fact, the law has worked out very well. There is very little friction or difficulty.

Mr. BROOKS. Has your quarantine measure been successful? Have you kept it in check or is it spreading on you?

Mr. MARLATT. The spread of the insect has undoubtedly been very much checked by this work. It is an expensive operation, as you can easily see, to do this. It requires the employment of a considerable force of men. The stamping out of these outside colonies

prevents at once the wider distribution of the insects from those places as centers, and by that means very greatly checks the movement of the insects. There is no question at all about the efficiency, as a check, of the work that is being done.

Mr. SCOTT. What do you think about the work that has been done by the State, and to what degree has it been effective?

Mr. MARLATT. The State has done very effective work in the interior; so much so that during the last year the gipsy moth has not been a serious pest in the residential districts.

Mr. SCOTT. Have you done anything under your appropriation of \$82,500 that the State might not have done with the expenditure of a similar sum?

Mr. MARLATT. No; because the State could have employed the same men and done the same work. The insect has already passed the boundaries of the State of Massachusetts. It is an insect which ultimately may affect the whole country, and I imagine the people of Massachusetts felt it was a problem which the National Government should assist them in solving.

Mr. SCOTT. It really was not a problem, was it, except in so far as the expenditure of money was involved? What I mean by that is, it has been a subject of research so long that all the methods of handling it have been ascertained, and there was no further investigation along those lines needed. Is not that true?

Mr. MARLATT. In general, that is true. But in all big problems like this we learn something every year in improvement in methods and in greater knowledge of habits and life history which enables us to apply remedies more intelligently. This, however, does not hold in the case of parasites. There is no force in New England or America which can handle that except the Department of Agriculture, because the State authorities have not the experts to determine whether a parasite is primary or secondary, or to know what the parasite is. That is technical information.

Mr. HASKINS. It appeared here that the State of Massachusetts had already expended several million dollars in exterminating the brown-tail moth, and now they ask the Government to take hold of it with their experts. Therefore they came here and asked for an appropriation to assist them.

Mr. MARLATT. The State of Massachusetts spent altogether over \$1,000,000 in the early work. The State of Massachusetts, with her towns and citizens, has spent this last year over \$600,000, so that the sum appropriated by this Congress is small, compared with the amount they are spending to help themselves.

Mr. SCOTT. I would like to follow this up a little further. In reply to my first question you gave a general negative to the inquiry whether you had done anything which the State might not have done with a similar expenditure; but now you say that the work done in the line of parasites could not have been done by anybody outside of the Department of Agriculture.

Mr. MARLATT. That is done on a State appropriation.

Mr. SCOTT. But that was done with the State appropriation?

Mr. MARLATT. Exactly.

Mr. SCOTT. All the Department did was to furnish the experts?

Mr. MARLATT. Yes.

Mr. SCOTT. The work that was done with your \$82,500 could have been done by the State?

Mr. MARLATT. It could have been done by the several States.

Mr. SCOTT. I mean by the several States. Do you know how much it cost the Department to supply the experts who expended this \$30,000 or \$10,000, or was that appropriation by the State used to pay the salaries of the experts which the Department employed?

Mr. MARLATT. The salaries of the principal experts were paid by the Department of Agriculture.

Mr. SCOTT. And their salaries went on just the same?

Mr. MARLATT. Yes; they were our own men, in our employ, and were detailed to this work. For instance, Doctor Howard himself, who is the chief entomologist, had general charge of it and made the arrangements in Europe for the importations. Of course his salary was paid by the Department of Agriculture.

Mr. SCOTT. The \$10,000 was used to pay his expenses?

Mr. MARLATT. To pay his expenses and the expenses of the introduction of the parasites. Some of the workers in Massachusetts are paid out of this fund. In fact, all of the laboratory work by the minor assistants—that is, the less expert assistants are furnished by the State of Massachusetts. We send practically only one expert there, with occasional supervision by Doctor Howard.

Mr. SCOTT. What would be your estimate of the amount of money needed to carry on the expense of that part of the work which could not be as well done by the States for another year?

Mr. MARLATT. I fancy \$10,000 would cover the probable expense of importing and caring for the parasites.

The CHAIRMAN. Do you think it is necessary to import more?

Mr. MARLATT. I think the importation should be kept up vigorously for a number of years.

Mr. SCOTT. Would that include the salaries of the experts?

Mr. MARLATT. No; that would be in addition. Probably \$15,000 would cover it all.

The CHAIRMAN. Do not these parasites breed in this country?

Mr. MARLATT. Not these we are importing. We have many native parasites, but very few of them attack the gypsy moth or the brown-tail moth. These are European species which are normal enemies of these moths in Europe.

The CHAIRMAN. Does not the parasite breed in this country?

Mr. MARLATT. It does after it is imported. It is not necessary to reimport them every year, but it will hasten the outcome to continue the sending in large quantities of these parasites. It is accomplished with very little expense. The cost for collection and shipping is trivial. It is being done by entomologists of the various countries in Europe at the mere cost of the time that they give to it. We are not paying salaries over there. We simply pay for the actual cost of time in collecting these parasites. It is very largely done as a courtesy in that respect. We do not intend that they shall lose money—that is, give time or employ labor. Any time or labor which they employ we pay for. Practically that is the expense.

Mr. LEVER. I would like to take you back to the series of questions asked by Mr. Scott, which seem to have the end in view of establishing the fact that perhaps this whole business could be better taken care of by the States threatened.

Mr. SCOTT. Just as well taken care of.

Mr. LEVER. Yes; just as well taken care of by the States threatened. Is it your opinion that you could get such cooperation among the States as would effect the stamping out of this pest as well as through the agencies of the Federal Government?

Mr. MARLATT. We must not forget that it is a very big problem and that it affects the whole country, and while it may be local in Massachusetts for a little while, or in Maine and Connecticut and Rhode Island, it is going to be a national problem very soon. If we can ward off or check the extension of these pests, I think that ought not to be lost sight of.

Mr. LEVER. Would there not be a natural conflict of authority if the State were to take care of it?

Mr. MARLATT. And it is found if we leave a problem of this kind to the State it is indifferent as to the escape of the insect across its borders.

Mr. BROOKS. It is entirely to that interstate feature that the Department of Agriculture is addressing itself in the last analysis?

Mr. MARLATT. Yes.

Mr. BROOKS. That interstate feature could not be as well handled, in your judgment, by the individual States as by the Government?

Mr. MARLATT. No.

Mr. BROOKS. And the States that have been infected have responded with exceeding liberality, so far as the local infestations were concerned?

Mr. MARLATT. Massachusetts is covered by the statement which is made, namely, that she has expended this year, by State, towns, and individuals, upward of \$600,000. The State of Connecticut has taken the entire cost of the eradication of one little point of infestation in that State, Stonington.

Mr. HENRY. Right here. How far have the ravages of the moth extended? I do not mean the immediate area where it has been present, but outside of Connecticut, Rhode Island, and New Hampshire?

Mr. MARLATT. It is not known. These are the outside colonies, this one at Stonington, Conn.—

Mr. HENRY. That is 50 miles away.

Mr. MARLATT. Yes; and the one at the city of Providence, R. I.

Mr. HENRY. Has it spread to Rhode Island?

Mr. MARLATT. The city of Providence and the adjacent woods are pretty well infested. It is chiefly, however, confined still to the city proper.

Mr. HENRY. Is the State of Rhode Island taking care of that itself?

Mr. MARLATT. We are cooperating with the State of Rhode Island.

Mr. HENRY. Are they expending some money on it?

Mr. MARLATT. They are expending some money.

Mr. HENRY. Have there been outbreaks in western Massachusetts?

Mr. MARLATT. Not west of Westboro, so far as reported, to my knowledge.

Mr. HENRY. But there have been some in New Hampshire?

Mr. MARLATT. In the southern and eastern counties of New Hampshire and in the southwestern counties of Maine the insect is just getting in.

Mr. HENRY. Are those two States doing anything to take care of it?

Mr. MARLATT. They both publish warning bulletins. They have both undertaken some work. Just the amount of work I can not say, but they are both interested and are doing something.

Mr. HENRY. How do you account for these outbreaks miles and miles away?

Mr. MARLATT. The insect is very readily carried by any moving object. The larvæ may fall on an automobile, for example, and be carried 100 miles in a day. Automobiles are believed to be one of the principal sources of spreading it widely.

Mr. HENRY. That outbreak in North Stonington was in a rural community. Of course it may have been possibly caused by an automobile, but it is off the general through lines of travel.

Mr. MARLATT. You can not always account for those cases. In some cases it may be the result of malice, but we would be very loth to believe that to be the case.

Mr. HENRY. I do not believe that could be so.

Mr. MARLATT. There was some indication that the infestation in Providence was malicious. The evidence is purely circumstantial. The insect suddenly appeared in Providence at six or seven points about the same time, and it seemed improbable that sporadic cases would appear at several different points in the city about the same time.

Mr. HENRY. Do you know Professor Britton?

Mr. MARLATT. Yes; he has direct charge of the work in Connecticut. I think he is a very competent man, and is handling it evidently with energy.

The CHAIRMAN. When was that outbreak at Stonington?

Mr. MARLATT. I think it was discovered last year.

The CHAIRMAN. You can not tell whether it is eradicated or not?

Mr. MARLATT. No. Everything they have been able to find has been killed, and it simply remains to be seen whether some hidden nest under a stone or elsewhere has been overlooked. Of course if some egg nest has been overlooked, that will show itself next year and that will be stamped out.

The CHAIRMAN. Have they demonstrated whether they can be eradicated in those isolated spots wherever they may break out anywhere in the country?

Mr. MARLATT. Yes. In point or fact, this insect may, of course, be vastly more widespread than we now know. An insect of that kind getting into a new territory is very apt to be unnoticed for a year or two until it has extended its colony so as to defoliate a considerable body of woodland.

The CHAIRMAN. How prevalent is it over Europe?

Mr. MARLATT. It covers all of Europe and Asia. It extends from the southern portion of Norway and Sweden through all of middle and southern Europe and across Asia to Japan.

The CHAIRMAN. You mean the gypsy moth?

Mr. MARLATT. Yes, sir; the gypsy moth.

The CHAIRMAN. But the parasite over there keeps it in check?

Mr. MARLATT. The parasites normally keep it in check. Once in a while the insect will appear and defoliate a large section of a forest. For instance, some six or seven years ago a considerable portion of



the forest of Fontainebleu was defoliated by the gypsy moth, and when I was there the following year there was not a sign of it.

Mr. BROOKS. They do not use any remedy that would be effective?

Mr. MARLATT. Not very effective. They always do something. They band the trees with insect lime, and use other remedies of that sort, which in this country would not do any good, but they seem to place great store on them over there.

Mr. HENRY. Is the dense area extending in Massachusetts or are they rather curtailing it?

Mr. MARLATT. It has extended widely during the last three years. The definite effort at control has been only within a year. The insect has been held in check as much as may be, and within the badly infested district it has been so reduced in numbers that the pest has been much less felt than last year, for example, or year before last.

Mr. BROOKS. The threatened defoliation of certain of the counties has not taken place?

Mr. MARLATT. Many counties have been defoliated year after year.

Mr. BROOKS. I mean this last year.

Mr. MARLATT. Yes; that is what I understand. I did not myself make a personal examination last year, as I was not in this country; but I understand from Doctor Howard and Mr. Kirkland that the trouble in the residential districts has been kept down so that it is not a grievous pest.

Mr. BROOKS. With proper interstate restrictions by the General Government, the local governments can take care of the infestation?

Mr. MARLATT. It would be impossible for the United States, for example, to appropriate a sum sufficient to do all the work. It would mean the appropriation every year very soon of two or three million dollars, and that would be out of the question, the State of Massachusetts alone having spent \$600,000 this year.

Mr. BROOKS. I am heartily in favor of this work. What I want to bring out, if I can, is that we are not wasting the money in spending \$100,000 in proper quarantine work, supplemented as it should be always, in my judgment, by proper local work by the people affected.

Mr. MARLATT. We feel that very strongly, and it was at our suggestion that this subdivision of the work in Massachusetts was adopted, so as to have a part of the expense borne by the people who are affected, so as to make the towns that are affected pay a part of it, and make the State pay the rest. It would be very undesirable, in my judgment, to have the National Government do all the work.

Mr. BROOKS. I think so, too. I think they should not be asked to do so, and I would not favor it.

Mr. MARLATT. But in this quarantine work we have been doing, it seems to us we could do a good deal better work and that we could legitimately spend more money. The chairman, as he remarked a moment ago, has a supplemental request which I believe has the indorsement of the New England Members—in fact, it was made by the Secretary on account of their request—that the appropriation be increased to \$150,000 instead of \$82,500. That was the sum originally asked for by the Entomologist, and that sum can undoubtedly be expended along the lines on which we are now working with good results, and legitimately, in my judgment.

Mr. FIELD. Doctor, I understood you to say that the methods

now used in the extermination of this moth are not new; that the work you are doing is not experimental, but demonstration work?

Mr. MARLATT. It could hardly be called demonstration work. This matter of control is not new work. It is not experimental work in that sense, but it is absolutely quarantine and repressive work.

Mr. FIELD. It is known to the Department and is put in application under the direction of the Department?

Mr. MARLATT. Yes.

Mr. FIELD. That being the case, this appropriation is based upon the ground that it is quarantine work, inasmuch as this insect is liable to visit other States, and therefore requires the assistance of the National Government. That is the theory upon which this appropriation is made?

Mr. MARLATT. I believe so.

Mr. FIELD. From the history of this moth, do you think it is hardly probable that it will be entirely exterminated in this country?

Mr. MARLATT. I do not think there is any chance now of extermination.

Mr. FIELD. And it is likely that the aid of the National Government will be invoked, and properly so, from year to year in controlling the ravages of this moth?

Mr. MARLATT. The aid of the National Government will cease, or should cease, at any rate, when the insect has become a local matter in all the region which it may infest. As long as the National Government can assist in quarantine work it is a national matter.

Mr. FIELD. So that appropriations may properly be made for that purpose?

Mr. MARLATT. It is possible, of course—in fact we hope that will be the result—that these introduced parasites may put an entirely different phase on the matter.

Mr. FIELD. What is the estimated damage resulting from the presence and the work of the moth?

Mr. MARLATT. It is very difficult to estimate the damage of an insect of that kind, because there is no definite crop destroyed that you can measure; but in the vicinity of Boston, popular suburban villages, such as Malden, and a dozen other villages around the Middlesex district, have been rendered almost uninhabitable in summer by reason of the enormous numbers of these caterpillars which crawl over the houses and into the houses and onto people and destroy the foliage, and hence make the cities hot and uncomfortable and destroy their beauty.

Mr. HENRY. There is nothing that they do not eat, is there?

Mr. MARLATT. There is no green thing, apparently, that they will not eat.

Mr. SCOTT. Do they kill the trees?

Mr. MARLATT. The deciduous trees die after two or three years of defoliation, and the pine trees after one year of defoliation. The property depreciates in value and people move away. Of course those of you who are familiar with Boston know of the enormous park areas—the Middlesex Fells and the Lynn Woods, and other wooded areas—many of them of private ownership. Many of these have been greatly injured or destroyed.

Mr. BROOKS. How much did the moth work in the Fells this year?

Mr. MARLATT. As I remarked before, I can not answer that fully.

I was there for a day early in July and there was very considerable damage showing in the Fells region and in all that district. The beneficial results of the work of the State have been largely in the towns—in the residential portion. The amount of damage, therefore, is very difficult to estimate, but it would run up into millions of dollars, undoubtedly, about Boston.

Mr. FIELD. That is actual damage to property, not including mental suffering?

Mr. MARLATT. I am not including mental suffering at all. In the case of the brown-tail moth, in addition to the damage by defoliation, there is the disagreeable result of poisoning the inhabitants of those districts. The hairs which this caterpillar sheds when it transforms are poisonous, and in floating through the air or collecting on garments hung out to dry after washing hundreds of people become inflamed and are poisoned for several months during the summer.

Mr. BROOKS. And sometimes rather seriously?

Mr. MARLATT. Sometimes rather seriously. Our own experts up there in charge of the parasite work, who had to handle the insects and larvæ, were badly poisoned throughout the summer, and the condition developed in one case was very serious. The man stuck to his work, but really was in better condition for the hospital than for the work during the whole time.

Mr. HASKINS. They are just as liable to attack timber land as anything else, are they not?

Mr. MARLATT. Exactly.

Mr. HASKINS. And then there would be actual damage?

Mr. MARLATT. The damage is actual enough, but it is difficult to compute.

Mr. SCOTT. Has there been any change in conditions that render an increased appropriation necessary?

Mr. MARLATT. The work that we have done, and that the State of Massachusetts has done, has shown a much broader field to be covered than we thought was the case. Perhaps the map will show the enormous area of periphery which must be taken up if the Department continues the work it has undertaken, and we will need a larger sum to do it efficiently.

Mr. SCOTT. Will you have to keep up a patrol this year along the picket line that you worked out last year?

Mr. MARLATT. Next summer we shall have to patrol the same region to see that the work has been effective, to stamp out any overlooked colony or egg mass; and the work we are now doing, chiefly in Massachusetts, should be extended with equal vigor into New Hampshire and Maine and Rhode Island.

Mr. SCOTT. Then the work you have done this year does not, as a matter of fact, allow you to move on to another field without additional appropriation?

Mr. MARLATT. The field is only partly covered, even with this year's appropriation. The work has been done chiefly in Massachusetts, and that work must be followed up.

Mr. SCOTT. Must be done over again?

Mr. MARLATT. It must be in part done over again.

Mr. BROOKS. It is not done over again in the sense of—

Mr. MARLATT. No; new infestations may come in this territory. That is, this territory is the fighting line, and we have to keep fight-

ing along that line to keep the moth back. If you abandon any portion of this line, you leave there an opening for the insect to get through.

Mr. SCOTT. It would be a mere conjecture, I presume; but would you care to offer a guess as to when you could abandon that picket line and move your troops somewhere else?

Mr. MARLATT. I am afraid, Mr. Scott, when we abandon that we will simply have to move farther inland. That is the unfortunate probability, unless we are able to get a large enough force to clean it up thoroughly on the outside and work in. That is what we hope to be able to do, and possibly with the aid of these parasites we are introducing we can force the line in instead of being ourselves forced out.

Mr. HENRY. How large an area has the brown-tail moth been over at this time? What is the limit of its visitation?

Mr. MARLATT. The known limit covers most of New England north of Connecticut.

Mr. HENRY. I have never seen it in Connecticut.

Mr. MARLATT. No; I say north of Connecticut. It has spread over much of New Hampshire, Maine, and Vermont. It has been found in Canada and in New Brunswick.

Mr. HENRY. What are the principal trees it attacks?

Mr. MARLATT. The brown-tail moth showed a great preference when it was introduced for the pear, but unfortunately it has demonstrated that it can live and be very destructive on most forest trees. The oak is very considerably damaged, and most of the forest trees are more or less injured. The principal trees are the apple and pear and orchard trees and oak.

Mr. BROOKS. Generally they will attack the deciduous trees first and the evergreens last?

Mr. MARLATT. Evergreens are not attacked.

Mr. HENRY. I was not aware that the brown-tail moth had attacked so many trees. I thought he was confined to a few trees.

Mr. MARLATT. During the first years it seemed to have a special preference for the apple and pear, but when it becomes very abundant it seems to be willing to take almost any deciduous plant.

Mr. HENRY. Then, between the brown-tail moth and the gypsy moth there is not much show in the country where they both travel?

Mr. MARLATT. Of course we hope great things from these parasites. We feel a great deal of confidence in the results so far obtained.

Mr. HENRY. Have you found a parasite for the brown-tail moth?

Mr. MARLATT. Yes; much of these importations has been of brown-tail parasites.

Mr. Chairman, the work of the Bureau of Entomology covers a great many other subjects. These discussed are two only of a great many subjects belonging to our work.

The CHAIRMAN. I notice there is quite a large increase in your lump-sum appropriation. Do you want to take that up in the absence of Doctor Howard? If you do we can go on with it right after lunch.

Mr. MARLATT. I shall be very glad to give you any information you may wish on that point.

The CHAIRMAN. You have the data, have you, upon which to base your claim for an increase?

Mr. MARLATT. Yes; I can give you the reasons for the increase.

The CHAIRMAN. Then we will take a recess at this time and take that matter up at a quarter after 2. Does Mr. Hopkins want to be heard?

Mr. MARLATT. Mr. Hopkins will speak on the subject of forest insects. He is in our Bureau and has in his charge the work on forest insects.

The CHAIRMAN. Does that come under your expenditures also?

Mr. MARLATT. That comes under our expenditures. It is all the same general subject.

The CHAIRMAN. Your hope of success in controlling this thing, then, is in the parasite?

Mr. MARLATT. The hope of large control is in the parasite.

The CHAIRMAN. Have you any hope of absolute extermination?

Mr. MARLATT. None whatever.

The CHAIRMAN. But you have hope that the parasite will work in this country as it does in Europe?

Mr. MARLATT. Yes.

The CHAIRMAN. And keep the moth in subjection, you might say?

Mr. MARLATT. And in the meantime we want to do the most we can to prevent its spreading.

The committee (at 1.20 o'clock p. m.) took a recess until 2.15 o'clock p. m.

#### AFTER RECESS.

The CHAIRMAN. Mr. Hopkins, we would like to hear briefly about the work you have been doing.

#### STATEMENT OF MR. A. D. HOPKINS.

Mr. HOPKINS. Mr. Chairman, the early work on forest insects has been in the line of determination of facts on which to base recommendations for their control. These facts have been determined by expert field men working in the principal forest areas of the country, and the result has been that we have collected a very large amount of data on which we are now able to recommend, definitely, the proper thing to do to control certain of the worst enemies of our forest trees.

The extent of the damage caused by forest insects is to be compared with that resulting from forest fires. This is not simply an estimate, but we know that throughout the forest areas of the whole country insects are working constantly. Much of their damage is hidden until the tree is cut and sawed into lumber, then lumbermen find that the product is worthless on account of being injured by the insects. We have in other places entire forests, of hundreds of square miles, practically devastated, as is the case in the Black Hills Forest Reserve in the western section of South Dakota. There the insect is practically destroying the forests of that entire reserve. Our attention was first called to it in 1901, and investigation showed that it was confined to one corner of the reserve, and that it was a species heretofore unknown. A study of its habits revealed the fact that it attacked the healthiest and best trees, and that it was spreading rapidly. A study of its life history suggested a method of control, and a recommendation was made at that time. Since then we have had a

man there during the entire summer season for two years conducting special investigations and experiments, so that we know probably more about that particular insect than any other forest insect.

Mr. BROOKS. Is that the turpentine beetle?

Mr. HOPKINS. It is the Black Hills beetle—the proper common name to distinguish it from another beetle that is called the turpentine beetle. The remedy is to cut the infested trees and remove the bark from the main trunk, which is done in the regular operations of utilizing the product. The demand for timber there is principally for mine props, railroad ties, and timber which requires the removal of the bark. The simple removal of the bark during the winter, or from September until the 1st of June, is sufficient to destroy the broods. So our recommendation was to concentrate the principal operations of cutting timber in the sections which are worst infested, by doing which it could be controlled. That is as far as we could go. Our means and duties are limited to the determination of facts on which to base our recommendations. We can not apply them, but they must be applied by the local people (or, in the case of the forest reserves, by the Forest Service). But we can tell them how to do it.

Now, we know that if this had been done, as we have demonstrated in another locality, it would have saved many millions of dollars' worth of timber—over a billion feet, according to estimates by the Forest Service, has been destroyed. As an example, in the Pikes Peak Forest Reserve there was a similar outbreak two years ago, where the timber was dying in clumps, and there was every evidence that it would spread and destroy the remaining timber, as it has in the Black Hills; but through the efforts principally of one individual, Gerald Palmer, who spent several thousand dollars in cutting and barking the infested trees, it is apparently under complete control. We have had a man there looking it over very carefully, and we find that the ravages have been checked and the forest practically saved.

Another example of a simple method of controlling these insects by commercial methods, or by the ordinary method of lumbering operations and forest management, is in the Atlantic and Gulf States, where the cypress—the bald cypress—is being worked up; and their methods, in most of the places, require that the trees should be girdled and left standing several months, in order to dry out sufficiently to float to the mill.

The green trees will sink to the bottom at once if they are put in the water, but by leaving the trees standing a few months they dry out sufficiently to float. They found that these green trees were being seriously injured by wood-boring insects—minute insects which bored into the wood and caused pin-hole defects, which greatly reduced the value of the product and which were causing a very serious loss. We have made an investigation of this during the past three years and have just issued a circular giving the results, and it is interesting to note that our recommendations fit in exactly with what the lumbermen had already determined from another line of inquiry and from practical experience. We found that if the trees were girdled in March, April, October, and November they would not be damaged by the beetle which caused the principal injury, and also that the winter girdling would be exempt, while the girdling in May, June, July, and September was very seriously damaged.

The CHAIRMAN. And August?

Mr. HOPKINS. As to August, if you will allow me, I will read a short paragraph from the report of our investigation:

The facts and evidence of immediate practical importance may be briefly stated as follows: Trees girdled in March, April, October, and November were not at all or but slightly damaged by the pine borer, while those girdled in May, June, July, and September were more or less seriously damaged. There were indications that trees girdled in August were not damaged as badly as those girdled in July and September, also that trees girdled from December to February were not seriously affected.

Now, the secretary of the Cypress Manufacturers' Association wrote to us for information, and this circular was immediately made up, published, and sent out, and they stated that they greatly appreciated it and would immediately consider the application of the information in their practical work—that is, conduct the principal girdling in the months indicated, and in that way avoid this loss. This is merely an adjustment of the regular lumbering operations which will bring about the prevention of losses amounting to hundreds of thousands of dollars.

It is very encouraging to find in a great many cases that similar methods can be applied in the control of forest insects. It is out of the question to treat forest insects as we do fruit insects or farm insects. It is out of the question to try to spray trees or treat them by any similar method. But when we know the life history of the insect and its habits and have positively determined the species involved we can recommend methods of control and suggest certain details in forest management and adjustment of business policy which, if intelligently applied, will bring about the desired result in a great many cases. Of course there are some insects which we can not control in this way.

Mr. HAUGEN. Are these insects indigenous, so far as you have observed them?

Mr. HOPKINS. Our forest insects, as a rule, are not introduced, but belong to this country. There is, however, an outbreak of a larch sawfly in Michigan which is evidently an imported insect introduced into this country many years ago. It destroyed the larch in New England in 1885 to 1887, spread into Canada, and is now working its way westward as far as the Lake Michigan region.

Mr. SCOTT. Have you noticed any parasites of these native insects?

Mr. HOPKINS. Oh, yes; they all have numerous enemies, which in some cases will reduce them or keep them in control for a short time, and then they break out again. But, as it happens, in the case of some of the very worst enemies of forest trees, such as the Black Hills beetle, they have very few natural enemies. There is only one species of this group of insects in other parts of the world, and it is not likely that we could find parasites to introduce in order to control it. In some other cases it will probably be found that the introduction of parasites is the only thing that can be done, especially with insects which defoliate the trees.

Mr. SCOTT. Do you find vegetable parasites damaging our forests to any extent?

Mr. HOPKINS. Do you mean diseases?

Mr. SCOTT. No; in the way of mosses, or anything of that sort, growing out of the trees?

Mr. HOPKINS. Damaging the trees?

Mr. SCOTT. Yes.

Mr. HOPKINS. Yes; in the far West, in the Pacific coast region, and in some sections of the Rocky Mountain region the mistletoe is very injurious to the pines.

Mr. SCOTT. Is that a true mistletoe?

Mr. HOPKINS. Well, it belongs to the same class of plants; it is parasitic.

Mr. SCOTT. I have observed in the Rocky Mountains trees dead, apparently, from the ravages of a moss that hangs from them, that looks a good deal like the Spanish moss.

Mr. HOPKINS. Well, I think you will find that the moss grows on the living trees just as well, but it is more evident on the dead trees; and the chances are that those trees were killed by insects, fire, disease, or some other cause. As a rule, I believe, mosses are not detrimental to trees otherwise healthy.

Mr. SCOTT. They are long mosses, hanging down?

Mr. HOPKINS. Yes; somewhat similar to the moss on the trees in the Gulf States.

Mr. SCOTT. And you think that of themselves they do not kill the trees?

Mr. HOPKINS. No; but the mistletoe is very often quite injurious.

Mr. BROOKS. You said last year, I think, Mr. Hopkins, that there was an idea growing that what we had hitherto supposed were the remnants of earlier forest fires were really the remnants of beetle working in previous times.

Mr. HOPKINS. Yes; and this summer we have gotten a lot more data along that same line, and we are convinced that many of the denuded areas were first killed by insects and then the fires followed.

Mr. BROOKS. And that these invasions of insects are no new thing?

Mr. HOPKINS. Oh, no. Many of them, it is true, are undescribed species, but the fact of it is that until the work was begun by the Bureau of Entomology in 1902, practically nothing was known of the forests insects of this country. It is absolutely a new field. Our principal work has been directed toward the discovery of the principal enemies, determine the species, and study their life histories, in order to have definite facts on which to base conclusions. It is the best result we have attained so far, and will enable us to do much better work in the future. Our greatest need now is for men to go into these reserves and demonstrate to the forest officials the importance of doing things a certain way, adopting certain methods of management, and certain regulations relating to timber sales and the cutting of timber. If that is done in the right way, it will avoid enormous damages; if it is done in the wrong way it will encourage the multiplication of these pests. So that we have a great opportunity for the practical application of the information already acquired. There is, however, much more to be learned.

New things are constantly turning up—new features. We just have a report from eastern Washington, in the Wallowa reserve, one of the new reserves, where the ravages of an insect are so extensive that the starting of a forest fire is suggested by a correspondent in order to kill the insects. Now, that may be advisable under certain conditions, but the chances are that it would be the worst possible thing to do. The man who reported it probably considers that all of the dead trees are infested, which of course is not the case. The



trees are only infested by the destructive insects while the trees are living or dying. After they are dead the insects are gone; they never come back to them; so that when you see a large area of entirely dead timber you may know there are no insects in it that will kill other trees. They leave the trees before they are entirely dead, and go into the bark of living trees. These beetles go into the bark and excavate galleries between the bark and the wood, in which they deposit their eggs. The eggs hatching into small grubs, extend their work from the egg galleries and separate the bark around the entire trunk.

But in some of those western areas the trees are so vigorous and have so much vitality that even after they are completely girdled in that way the leaves will remain green for several months. In the spring the leaves begin to fade and turn yellow, and by the time they have changed to a reddish color these broods of insects are all out and going into living trees again. So that it is absolutely necessary to cut these trees and bark them within a given period, as in the case of the Black Hills beetle.

There is another one of these pine-bark beetles which occupies the Southern States from North Carolina to Texas which is equally as dangerous and is a constant menace to the pine forests of the entire South. It demonstrated its ability to destroy the forests in West Virginia and Virginia in 1901 and 1902. In two years it spread over an area of 75,000 square miles and practically exterminated the pine timber over hundreds of square miles. It got into the spruce forests in the high mountains and killed an immense lot of that.

But it was a southern insect, and during the winter of 1903 the severe cold, which reached 25° below zero in many localities, completely exterminated the beetle in that area. But it remains in the South and it has been one of the subjects for investigation throughout the Atlantic and Gulf States for several years, and we find it located all through the South. It only needs certain favorable conditions to multiply and work northward and make another similar invasion, and it is a constant menace to the pine forests of the South.

Mr. COCKS. Has your attention been called to trouble with the chestnut trees in the Eastern States?

Mr. HOPKINS. Yes, sir; that is a subject which has received special attention, but there is a complication which has rendered it impossible to arrive at any definite conclusion. There is a disease which evidently has as much to do with it as insects; in fact, the ravages of the insects appear to be secondary to the effects of a disease.

Mr. COCKS. Is it a new thing all through the eastern country?

Mr. HOPKINS. I think not. We find old trees which have been dead for many years.

Mr. COCKS. On Long Island it has been very much more prevalent within the last year or two—we have never noticed it before—and large numbers of chestnut trees there have died.

Mr. HOPKINS. Nearly all the chestnuts in some sections throughout the Appalachian region have died within the last fifty years; the older trees have died.

Mr. COCKS. Yes; but this is attacking vigorous trees.

Mr. HOPKINS. Vigorous young trees, yes. Well, it is apparently working on those, but older ones have been killed. And the effect of the disease tends to encourage the development of certain insect enemies which are capable of killing trees when they occur in sufficient numbers.

Mr. COCKS. Is the Department investigating the disease?

Mr. HOPKINS. I do not know; that would be the work of the Bureau of Plant Industry.

Mr. COCKS. Well, you have not done anything along that line, have you?

Mr. HOPKINS. Except in a general way. Of course, in studying the insects we always determine whether or not there is some other primary cause, and if we think it is caused by a disease we turn the subject over to the Bureau of Plant Industry, confining our work entirely to the investigation of the insects.

Mr. HENRY. Doctor, have you discovered any new facts connected with the elm-tree beetle?

Mr. HOPKINS. As the work is arranged now in the Bureau, the insects of the shade trees fall under another division. There is so much to do on strictly forest trees that it requires the entire attention of the section of forest-insect investigation.

Mr. HENRY. That is outside the scope of your work?

Mr. HOPKINS. Yes; that does not come in the work of forest-insect investigation as at present organized.

The CHAIRMAN. You are the gentleman who came up to Genesee some years ago, are you not?

Mr. HOPKINS. Yes, sir.

The CHAIRMAN. Do you know that pest that destroyed all our hickory trees has disappeared?

Mr. HOPKINS. Well, it killed most of the trees first.

The CHAIRMAN. No; there are a few left. There are five or six around my house that I was very anxious about, and I thought they were threatened once, but they have survived.

Mr. HOPKINS. We found a good many natural enemies of the beetle, which indicated that they would keep the insects in check.

The CHAIRMAN. But they ruined thousands and thousands of trees.

Mr. HOPKINS. Yes; in other sections it has also been very destructive. We had an opportunity to demonstrate what could be done with the same insect on Belle Isle, Detroit. There they have many hundreds of shellbark hickories, which they value greatly, because the park officials have what they call children's day about the time the nuts are ripe, and the children gather the nuts. Well, this beetle got in there and had killed some two hundred trees and was threatening the entire extermination of the hickories on the island.

When we made the investigation we marked certain trees, to indicate the kind of trees to cut, and recommended the immediate cutting and removal of these infested trees. The city officials took it up right away and arranged to do it. About that time a handle manufacturer came in and proposed to cut the trees and take them off the island for the timber, so that it cost the city nothing. And it was a complete success.

The CHAIRMAN. Removing the infested trees?

Mr. HOPKINS. Simply removing the trees infested by the broods of the insects. Not a tree has died since, I am told. I hear from

there every year, and it has been a complete success and has cost the city nothing. The trees were dying anyhow, and this man proposed to take them before they were entirely dead and remove them, and in that way solved the problem.

The CHAIRMAN. Those pests have disappeared entirely from our country, and the hickory trees now are perfectly healthy.

Mr. HOPKINS. Well, it is one of those pests which will drop out for a number of years and then come up again, so that you may look out for it. And it is of the greatest importance, when you see it beginning its work, to cut the trees that are infested, remove the bark, and burn it.

Mr. HASKINS. It seems true with reference to our maple trees and sugar orchards in Vermont. A few years ago the pests went through the forests and orchards, killing trees. They all disappeared in about two years.

#### STATEMENT OF C. L. MARLATT—Resumed.

The CHAIRMAN. On page 35 you ask for an increase of \$38,810 in your lump-sum appropriation.

Mr. MARLATT. The reason for that request, Mr. Chairman, is certain new work which we desire to undertake and for the normal increase of the work that is now under way.

The new work consists of several items, one being the establishment on the Pacific coast, in California, of a station for the investigation of the insect enemies of cereal crops. We have not carried our work of investigation on that subject on the Pacific coast, and there is a strong demand and a great need there for the establishment of a station for such work. All of the important insects which affect the cereals in the Mississippi Valley and in the East are already represented on the Pacific coast, or are coming in there, and the demand and need for that work is imperative. We would like to have an increase of at least \$5,000 to cover the experimental work that we wish to do in the Pacific cereal districts, with reference to wheat particularly.

The subject of the investigation of the apple insects, and particularly of the codling moth, was especially demanded last year by some of your members, and some work was done, on what appropriation we then had, in Nebraska, in Missouri, and in Kansas. It is desired to carry out that work on a better scale and do it more thoroughly, and that will call for a considerable increase in our appropriation. Five thousand dollars is the least amount on which any work of that sort, on the scale that it will need to be carried out, can be done.

Mr. SCOTT. Did you reach any results in that investigation, so far as it has been carried on?

Mr. MARLATT. We carried on some demonstrational work on the spraying of orchards in Nebraska. No earlier work has been done by us throughout the important apple region of Missouri or of Nebraska.

The CHAIRMAN. What sort of spraying do you mean? I thought the spraying of orchards was thoroughly understood. It is in my country, and in all those apple counties in New York State; it is thoroughly understood, to my personal knowledge.

Mr. MARLATT. The habits of the insect vary somewhat in different regions, and the work in Missouri and Nebraska and adjacent regions

is complicated by the presence of the apple scab, and our object is to discover the most economical means of treating these two enemies together. It is found that in most cases a spray can be combined for the joint treatment of both the apple scab and the codling moth. There has been a very strong effort from all three of these sections to have this work done; and we believe that it is legitimate and will do a great deal of good.

The CHAIRMAN. Are you actually spraying the orchards, or simply giving the formula for the spray?

Mr. MARLATT. No; we are doing actual demonstrational work.

The CHAIRMAN. To what extent?

Mr. MARLATT. The orchards are selected and the work is done in different localities in each of these States.

The CHAIRMAN. How many orchards have you sprayed in Nebraska?

Mr. MARLATT. We do a good deal of work in cooperation with the farmers themselves. We go among them and get them to give their orchards, or to agree to do the work under our supervision. We send men there to supervise the work and see that it is done properly.

The CHAIRMAN. The success of the spraying depends a good deal upon the time when it is done, does it not?

Mr. MARLATT. It depends altogether on the time when it is done. It depends also very much on the care with which it is done. A very slight failure to carry out proper details will nullify the work absolutely.

Mr. SCOTT. My recollection, Mr. Chairman, is that this work was authorized last year chiefly at the instance or at the request of Mr. Pollard, of Nebraska, with the understanding that it was to be chiefly, if not entirely, demonstrational work. I would like to inquire whether you have done anything except demonstrational work; whether you have learned anything in regard to the method or the time or the material of spraying that you did not know before you went in there.

Mr. MARLATT. We have made a very careful study of the insect itself. The whole spraying operation depends on the time of appearance of the insect, and we have made a very careful record and study of the appearance of the insect in the regions indicated, the studies being based on actual orchard investigations, laboratory studies, and studies of the insect as it is found in apple storage warehouses. All that is necessary as a basis is to find the exact time—i. e., best times to make the applications. That work is necessary to and is being done in conjunction with the demonstrational work.

The CHAIRMAN. Now, I am going to ask you a question that I have asked so often that I am ashamed of it. Is there not some work that you have been doing that is closed up, so that you can use the money for something else. Don't you ever close up anything over there? To a layman it seems rather extraordinary that each year there has got to be an increase for some new work. Is there no ending to any of these investigations?

Mr. MARLATT. That is a perfectly valid question, Mr. Chairman, and I should be glad to answer it to your satisfaction. These problems are big problems; they are not stopping. It is not possible to exterminate these insects. It is like disease; we have to have doctors all the time; even if they cure us of one attack we get another. The

control of insect pests is a big problem. It is one that will go on year after year, and I am afraid that your committee will be bothered with it for many years to come. You can not exterminate these insects; no insect in the world has ever been exterminated; they will go on doing their work, and there are new generations of ignorant farmers coming on the field all the time, who have to be instructed. Therefore this work must go on.

The CHAIRMAN. I do not think Mr. Cromer thinks his farmers are ignorant. Do you, Mr. Cromer?

Mr. CROMER. No; I think they are about as intelligent as yours.

Mr. MARLATT. I trust that no one will consider that I am disrespectful, because that is not my intention. The experience once gained is not lost. The information that has been gained in New York in the treatment of the codling moth is not lost. That applies to New York. The conditions in New York, however, are absolutely different from those in Nebraska and Missouri. In New York you are in a northern latitude. You have practically one brood of the codling moth a year. You have the very best of conditions; the treatment there is the simplest of any in the United States, and the results are the best. But you have different conditions in Nebraska and Missouri, i. e., two or three broods, and the conditions are even worse in more southern districts, as in Oklahoma or in New Mexico; the southern California conditions are much worse. Special investigations for these different districts must be made to determine the best time and the best means for controlling the pests in each district.

Mr. HASKINS. Then you can issue a bulletin to instruct everybody, can't you?

Mr. MARLATT. Certainly.

Mr. HASKINS. You have done it heretofore?

Mr. MARLATT. Yes, sir.

Another new line of work which we would like to conduct is in California on the citrus trees. We have not asked for money for work in California for many years, but there is a very large demand now for a careful investigation of the subject of fumigating the trees. It is a technical process; it consists in generating a gas, chemically, which is destructive to insect life.

The CHAIRMAN. Hydrocyanic-acid gas?

Mr. MARLATT. Hydrocyanic-acid gas. The process is on a good basis; it is one of the standard means of control in California; but the results are not always uniform. Trees are sometimes injured by careless methods or the results are unsatisfactory; and they desire the Department to take hold of it scientifically, and, with the aid of the Bureau of Entomology and the Department chemists, to put the thing on an exact basis. Part of this increase in the appropriation for which we have asked is to undertake this work in California.

The CHAIRMAN. One of the items for which you ask a certain portion of that increase is an investigation into the natural history of the Texas cattle tick. Now, there was a gentleman here last year, or the year before, who gave us a complete natural history of the Texas cattle tick. Mr. Field, you remember that?

Mr. FIELD. Yes.

The CHAIRMAN. Where was he from, Texas?

Mr. FIELD. He was a Louisiana man.

Mr. MARLATT. Professor Morgan, of Louisiana.

The CHAIRMAN. He gave us a complete natural history of the Texas cattle tick.

Mr. MARLATT. He probably knows as much about it as any man in the South, or any man in America, for that matter.

The CHAIRMAN. He seemed to us to know all about it.

Mr. MARLATT. He has made perhaps the most careful study of the life history of the tick that has been made; but that study, as he stated himself, was for Louisiana. He was here before this committee to urge the doing of work throughout the South similar to what he had done in Louisiana. And that is the object of this item that you have just read. The Texas cattle tick is the sole means, as you know, of introducing and keeping in existence the Texas fever; and the main means of controlling the fever—practically the sole means of controlling the fever—is in controlling the tick.

The control of the tick depends on a knowledge of its habits, and these vary in different districts in the South, owing to local conditions, climatic conditions, rainfall, etc. The same study which Professor Morgan made in Louisiana should be made in every State where the tick occurs. And this life-history study of the tick—not the control of the tick, which belongs to the Bureau of Animal Industry—the study of the life history of the tick, on which the rules of control can be based, properly comes within the jurisdiction of the Bureau of Entomology. We would like a sum of money to conduct that work in cooperation with the State experiment stations. We have actually begun such work, and it was believed that a portion of the appropriation of last year would be set aside for the entomological work; but through a misunderstanding the entire amount was taken by the Bureau of Animal Industry; and this life-history work, which is absolutely essential to a proper understanding of the subject, will have to be abandoned unless provided for in this bill.

Mr. SCOTT. Well, was not that appropriation of \$82,500 spent by the Bureau of Animal Industry on the theory that the life history of the insect was already understood, in all of its habitats?

Mr. MARLATT. I do not think they would make that claim.

Mr. SCOTT. Well, we have heard them very exhaustively here, and they have not intimated that there was anything about the bug that they did not know. They seemed to think it was merely a matter of following out the methods that have thus far been pursued.

Mr. FIELD. Mr. Scott, you remember they were only attacking them on two lines. One was to destroy them with the Beaumont oil; the other was to quarantine the infected cattle.

Mr. SCOTT. That is very true. They did not intimate that they might take up the attack from another direction, and I thought it was a fair presumption that they were attacking them on the only lines that they regarded as effective.

Mr. MARLATT. That is the very point that I want to bring in, Mr. Scott; that there is another important line, and perhaps the most important of all, along which you can attack the cattle tick, and that line is based on these life-history studies; in other words, the means of control known as pasture rotation. The disease coming solely from the tick, it follows that without the tick there can be no disease, and if you free the cattle from the tick and free the pasture from the

tick, the tick and the disease disappear together. Now, the tick spends only a portion of its life on the animal and the rest on the ground; and by studying the life history you can determine just the periods of pasture rotation by which you can have all the ticks fall off the cattle in one pasture and then transfer the cattle to a clean pasture and keep them there until the ticks all die in the first pasture, when the cattle may be reintroduced. You may have two or three pastures in the system, but that is the principle in a nutshell.

Mr. SCOTT. In the hearings that we had last year the gentlemen who spoke on those subjects seemed to speak with all possible definiteness, giving us the impression that they knew exactly how long a pasture would have to be abandoned for the ticks remaining on it to die, and that they knew the habits of the insect thoroughly.

Mr. MARLATT. That has been studied thoroughly only in one locality, Mr. Scott, in the work done by Mr. Morgan in Louisiana; and all the exact knowledge we have, practically, is based on that particular investigation.

Mr. SCOTT. Well, has there been a sufficient study of it elsewhere to lead you to believe that it has different life habits in other places?

Mr. MARLATT. Yes. The work that has already been conducted indicates distinctly such differences, and hence the need of a careful investigation of the whole subject—that is, of the whole life-history subject over the range of the tick.

The CHAIRMAN. Mr. Morgan says here that he has made a close study of the life history of this insect. He does not say whether it was simply in Louisiana.

Mr. MARLATT. I should be very glad, if you care to take the time, to have you hear Mr. Hunter, also, on this point of the cattle tick, because he has been directly associated with the work that we have already done in the South.

Mr. SCOTT. Stated very briefly, Mr. Marlatt, it was said here before us last year, if my memory is not at fault, that when the tick dropped from the animal to the ground it sought a near-by plant and laid its eggs, and when those eggs hatched the young ticks remained on that plant, crawling up to the top of it, until a cow went by and scraped them off, and that they got on the live stock in that way.

Mr. MARLATT. Yes.

Mr. SCOTT. And these gentlemen also told us the life of the tick and all of the details in regard to it. Now, you say that that study was in Louisiana only, and that there would be essential differences in Texas, for instance?

Mr. MARLATT. Undoubtedly. That is, the differences will be merely a matter of determining dates—the length of time which it would be safe to keep cattle in one pasture before transferring them to another. In other words, all these points of transfer are based on life-history periods. The life history of the tick will not change—that is, the routine life history will not change—but the dates when that routine is passed through, when the different periods are passed through, will change.

Mr. SCOTT. You think it would live longer in any one State than in any other, do you?

Mr. MARLATT. Yes.

The CHAIRMAN. It would live longer in the South than in the temperate zone?

Mr. MARLATT. Yes, sir.

Mr. ANDREWS. Mr. Marlatt, is it not true that in some places the ticks remain on the cattle all winter?

Mr. MARLATT. No; the tick does not remain on the cattle beyond a certain time—that is, when it has finished its growth on the animal it falls to the ground.

Mr. ANDREWS. What I mean is, it continues its life history the year round at some places?

Mr. MARLATT. On the cattle?

Mr. ANDREWS. Yes, sir. On the cattle and on the ground, and in other places the winter is so long that it dies out?

Mr. MARLATT. It requires the combination of the animal all the time to keep the tick going. If the animal can be dropped out the ticks that are on the ground will eventually die.

Mr. ANDREWS. You don't quite get my meaning. My thought is that in the colder sections a different method will be used because of the long winter, practically starving out the ticks, so that, unless they are carried into buildings or something like that, they will not continue.

Mr. MARLATT. That is true of the northern range of the tick and also beyond its normal range.

Mr. FIELD. Have you ever seen the tick throughout the year in our portion of the South, or have you observed that?

Mr. MARLATT. The one individual tick?

Mr. FIELD. I mean ticks that succeed each other on the animal; wouldn't they be exempt at some period of the year—in the winter time?

Mr. MARLATT. No; the animals would be continually reinfested if they were on infested territory—that is, the young ticks that are present all the time in your section would infest the animal throughout the year.

Mr. ANDREWS. Throughout the entire season?

Mr. MARLATT. Throughout the year.

The CHAIRMAN. Those are the items for which you ask the increase; is there any other?

Mr. MARLATT. Those are the principal items for which the increase was asked, in addition to the normal increase of the work as a whole. The work as a whole has a normal and legitimate increase. We are doing more work. As we do work the opportunity for work opens up, and there is naturally a normal increase, and we have asked a very small sum for that normal increase. Most of the sum indicated is for these special items of new work. I thank you.

The CHAIRMAN. Now, Doctor, we will hear you.

#### STATEMENT OF DR. ELWOOD MEAD.

Doctor MEAD. In my statement before the committee last year I called attention to what I regard as a very important condition existing in the semiarid belt, embracing about 300,000,000 acres of land, growing out of the high-priced farms in the East and the cheap land there, namely, that during a succession of rainy seasons a wave of immigration started into the semiarid region and was repeopling a country that had been settled two or three times before. Having seen the previous attempts at farming without irrigation in



that region, and the hardship and suffering that resulted from failure, it seemed as though everything should be done to prevent that this time.

Therefore we asked, and this committee very kindly gave us, an increase in our appropriation to determine the methods of using limited water supplies or irregular water supplies, and to carry on an educational campaign among those settlers to induce them to make irrigation a feature of every farm wherever it was possible. Now, I believe the occurrences of the last year have made that work more important than it was when I appeared before the committee last year. Unfortunately, as I think, we have had another rainy season.

The CHAIRMAN. Unfortunately?

Doctor MEAD. Yes, sir; and that has been taken advantage of to work up an artificial boom in lands. Lands in a section of the country that is arid, if there is any arid region in this country, have risen within the past two years in certain places from \$1.50 an acre, their value for grazing purposes, to as high as \$20 an acre. Now, that is wholly an artificial value. Colonies are coming from the Eastern States under the belief that the climate has changed; that there has been a definite and permanent change in the climate. It has a fertile soil; it is an attractive country to look at, and they are making homes there. Now, there will come again dry years, and unless those people fortify themselves by special methods of cultivation, which they are slow to adopt—and, furthermore, by irrigation—the great majority of them that are on the extreme border line of that settlement will have to move out.

Now, what we have done is to begin the gathering of information that will enable us to give them reliable advice about what is possible in the way of irrigation, in the way of establishing a 5 or 10 acre irrigated tract as a feature of the dry farm; the places where they can safely undertake that, what it will cost them, what obstacles they will have to overcome, and the methods they ought to follow; and along with that, to so locate our experiments and demonstrations as to make them most impressive to those people, to reach as many of them as we possibly can, and get as many of them to adopt these methods at once as possible.

Now, we have not the information that is needed to give a beginner reliable advice; but we have learned something by the work that we started under this appropriation. You will understand that the great majority of those farmers who are taking up this work are from the East. They know nothing about irrigation in any form, and especially they know nothing about the peculiar requirements in using limited water supplies. We have established a number of stations in the West to illustrate that work.

The CHAIRMAN. How many?

Doctor MEAD. Four.

Mr. SCOTT. Where?

Doctor MEAD. One in Texas, one in Colorado, one on the border line of Colorado and Wyoming, and one on the border line of Wyoming and western Dakota; so as to string them along that debatable ground, from its southern to somewhere near its northern limit.

The CHAIRMAN. How many acres are there in each of these stations?

Doctor MEAD. The greater part of our work will be limited to 40 acres. We will endeavor to irrigate 10 acres, and if we are illustrating the utilization of underground waters, not over 5 or 10 acres. But at one of these stations we are demonstrating what can be done by the use of storm waters—the waters which run in the winter, waters which can be taken at other than the normal irrigation periods. We are irrigating there a considerable area, about 40 acres, in order to make it as impressive as possible.

Mr. BROOKS. These experimental farms are apart from the ordinary irrigation systems; that is, they do not get their water from any considerable streams?

Doctor MEAD. Oh, no. It is no use to demonstrate what can be done under ordinary irrigation methods. Those are understood. The object is to work out and demonstrate what can be done in the use of limited water supplies, which is the great difficulty of the man who goes on a dry farm.

Mr. BROOKS. And those are the conditions that obtain over the great mass of this 300,000,000 acres?

Doctor MEAD. Ninety per cent of it.

Mr. SCOTT. Have you succeeded in impounding enough storm water to be of any irrigation value?

Doctor MEAD. In that work we have not attempted to do that ourselves. What we have done has been to study the methods employed by others who are doing that, and the results they have obtained; and we have published a bulletin, which is in the press now, to show how that can be done. There is a great deal being done in that direction.

But on much of this uniform sloping plain the impounding of storm water will not be as important, nor available to as many people, as the utilization of underground waters. In much of that country the waters which come down out of the hills sink in the sand, and you have a broad sheet of soil water that can be pumped to the surface; so that the probabilities are that water from wells will be the reliance of the great majority of those people. Where you can utilize flood waters that come down the streams, simply by turning them out on the ground and starting the subsoil, that will be cheaper than impounding, cheaper than storing it, and a better plan; but we are not as yet prepared to make any definite recommendations about that until we have tried it two or three years ourselves. Now, last year we had a most remarkable result, but last year was a rainy year.

The CHAIRMAN. Well, you have had three or four rainy years, have you not?

Doctor MEAD. Yes, sir. Now, the settlement of that country that was discussed last year has gone on, so that to-day the necessity for educating those people and urging them and influencing them to protect themselves is greater than it was last year, because they have more money invested in land and there are more people there than there were before.

Mr. BROOKS. And the loss from a dry year would be much greater?

Doctor MEAD. Oh, yes; much greater. If a dry year were to come this year there would be a tremendous loss and disappointment there.

The CHAIRMAN. You think you are going to offset a dry year—you are going to succeed notwithstanding the dry year?

Doctor MEAD. I think that every man in the region of our investigations who can irrigate five acres of land, and do it properly, can live off of that five acres. He can not make any money, but he can live.

The CHAIRMAN. That would be principally from a well, Doctor?

Doctor MEAD. Yes.

The CHAIRMAN. Now, would the water of that well be affected by dry seasons—by a series of two or three dry seasons?

Doctor MEAD. No, sir; I do not think so; because in dry seasons there is not in every instance, and probably not in the majority of instances, so large a variation in the annual rainfall as in its distribution. It is a uniform rule of all arid regions that the smaller the annual rainfall the more irregularity there is in its distribution; and so the hazard there comes from two things—a falling off in the annual rainfall and the falling off in the summer months when it is needed.

Mr. SCOTT. Have you taken records there to show just how much the excess of rainfall has been for the past three or four years?

Doctor MEAD. Yes, sir. At Denver and Cheyenne the average is about 14 inches. The year before this (1905) it was 22 inches. There was an increase of 8 inches, as much as the annual rainfall in dry years. This year it was about 16 inches—not a very great increase, but it was well distributed; it came at the time when it was needed.

Mr. SCOTT. Well, you know the people who live out there insist that the difference which they think has taken place in the climate is not so much an actual increase in the annual rainfall as in the distribution.

Doctor MEAD. Yes.

Mr. SCOTT. And I wondered if your observations would confirm that.

Doctor MEAD. Oh, I think not; no.

Mr. SCOTT. You think that when a normal year again comes round they will find that the rainfall is just as unequally distributed as it was in any other dry year?

Doctor MEAD. Yes, sir. There are no natural causes to lead to any sweeping changes of that kind.

Mr. BROOKS. Over how long a period of years has your observation extended in that country?

Doctor MEAD. Twenty-four.

Mr. SCOTT. Well, will not the cost of installing an irrigation plant be within the reach of the average farmer?

Doctor MEAD. I think so; I do not think there is any question about that. There have been a great many installed. But my belief that that is so is not what is needed to lead men to install. Unless we believed that there would be no need of this investigation.

Mr. SCOTT. That is the reason I asked the question.

Doctor MEAD. Yes; and I feel perfectly confident of that. But we can not convince men that know nothing about the subject that it is so. You must be able to show them what it will cost, just what obstacles they are likely to encounter, what kind of machinery they ought to secure, and then how they ought to utilize that water. That we know; that is only a feature of it; that only needs demonstration,

so that they can come and see that part of it. We know that already. But these other things are new problems in irrigation in this country, and to show just how necessary it is to understand those I will give a little of our experience this year.

If you are going to use an engine for pumping your water, the question comes up first as to the horsepower that is needed, and then the type of engine that is to be employed. There is the question whether you can use gasoline or alcohol for fuel. We have been studying that this year. But there is another important question there, and that is what type of engine you are going to employ.

For farmers' use in this country there are two distinct types of engine, whether it is alcohol or gasoline. One is a cheap engine and one is an engine made so as to be perfectly regulated. Now, we obtained for use in this work a cheap engine. It was set up by an expert who understood his business, and it was sent to us by the manufacturer with the knowledge that it was to be used for experimental purposes. The inference is that they sent us one of their best engines. But after running it an hour the engine was in such condition that it had to be sent to the shop for repairs. Now, if a farmer had been running it and had not known enough to stop it in an hour it would have been ruined, and he would have said that irrigation by pumping was a failure. The year before last I saw 18 engines purchased by farmers and laid aside simply from a lack of knowledge of one fact, that they had their engine rated by the average work it was to do, whereas in all gas engines attached to pumping machinery the first stroke involves fully a third more work than the average load that is put on them, so there must be that reserve power in order to start them. Of course the farmers could not start them, and every time they wished to irrigate again there was the necessity of sending for an expert to make them go. It was simply a lack of knowledge of that one fundamental fact.

Now, what is needed is the carrying on of investigations that will enable us to tell farmers what kind of wells to put down, the amount of water required, how to plan and lay out irrigation, what it will cost, and how to apply the water, and to carry on that work as a demonstration work so that they can see it themselves. Now, there were fully 5,000 farmers came to Cheyenne last year to see that farm, and it has unquestionably had a practical influence on the country there, because, just as one illustration, there have been 16 reservoirs started—little storm-water reservoirs. In beginning the work we were given a ditch built fifteen years ago and never used since that time; it had been abandoned for fifteen years. We cleaned it out and turned the storm water on the field in October; gave it no irrigation. We could have irrigated this summer; there was plenty of water in the creek—normally that creek is dry in the summer time—but we did not turn in the water because we were showing the farmers what could be done in winter irrigation. When in Cheyenne this summer one of the old owners of the ditch came to me and said, "Now, I want to know if your use of that ditch is going to destroy our water right, because we have seen what you are doing. We are going to clean that ditch out and use it ourselves in the same way." And there has been a cleaning out of all the ditches along that stream, and it is going to result in a great extension in irrigation.

Mr. SCOTT. Do you mean by that that you just flooded the land with the water during the winter period?

Doctor MEAD. In October.

Mr. SCOTT. And got good results from it during the whole growing season?

Doctor MEAD. Yes; we got \$50 worth of potatoes to an acre this year—as fine potatoes as were grown anywhere.

Mr. BROOKS. In fact, there is a revolution going on in regard to the theory of irrigation—in regard to the amount of water that is needed and the time to apply it?

Doctor MEAD. Yes, sir. A change is taking place in irrigation practice in the irrigated districts everywhere in the utilization of water outside of the growing period. In the beginning of irrigation the farmer believed that he had to wait until the leaves had begun to wilt and then apply the water; that he should wait until the crop needed water, and that the application must be immediate. Now it is being found out that you can store up moisture in the subsoil; that if you have got flood waters, in autumn or spring, at a time when they would otherwise run to waste, you can pour them over the ground, put it in the subsoil, and it is available for the crop's use during the summer.

Mr. HAUGEN. Is that a recent discovery?

Doctor MEAD. It is a growing discovery; yes, sir; and a growing conviction that it is a true principle, so that its use is being extended. And probably this work that we did on that line was as impressive and as much talked about as anything that has been done.

The CHAIRMAN. Can you store it in rolling land—sharply rolling land?

Doctor MEAD. You don't irrigate much on sharply rolling land. You don't have to out there. There is so much smooth land to utilize.

The CHAIRMAN. I do not mean hilly land, but simply rolling land.

Doctor MEAD. Oh, you could not store it in any soil that does not have a very deep subsoil. You could not store it in a soil like the eastern soil, with its tenacious clays.

Mr. SCOTT. How much bigger was this ditch crop, in your judgment, than it would have been without that winter irrigation?

Doctor MEAD. We had some land planted to potatoes that was not winter irrigated, and we did not harvest it. It was not worth it.

Mr. FIELD. Doctor, where surface wells are relied upon, with a depth of water, say, of 25 feet, what would be the average cost of irrigating 5 acres of land?

Doctor MEAD. I think anywhere from \$300 to \$500. It depends on whether you use windmills or gasoline engines; whether you have a small storage reservoir or are attempting to irrigate from the well. But the range would be between \$300 and \$500.

Now, we have planned in our work next year to carry on these stations that we have established.

The CHAIRMAN. What arrangements have you with the owners of the land?

Doctor MEAD. We have a lease of those lands for as long as we wish to use them, for either no rental at all or (usually) a nominal rental of \$1 a year. At the last station to be established, in Colorado, the citizens of the county have put the farm in fine condition; they

have built us a fine barn there, and a tool house, and other things, so that we would not expend any money except for the purposes of our work. We wanted the people of the community, if they were interested, to do that for us, because we did not feel that the Government fund ought to be spent on any permanent improvements.

The CHAIRMAN. Is that owned by an individual or owned by the county?

Doctor MEAD. It is owned by an individual.

Mr. SCOTT. What disposition do you make of the crops that you raise on the land you control?

Doctor MEAD. Well, we have only had one crop.

The CHAIRMAN. They only started in July.

Mr. SCOTT. You spoke of \$50 worth of potatoes, and I wondered what you did with them.

Doctor MEAD. Yes; now this is what happened there: The Board of Trade at Cheyenne furnished us with over \$1,000. We turned this crop over to them, to use for whatever purpose they saw fit; they marketed the crop and turned the proceeds back to our use, if we needed them.

Mr. BROOKS. And there is a general disposition to cooperate, is there not?

Doctor MEAD. Oh, yes.

Mr. BROOKS. The people are interested enough, and appreciate the value of this work enough, to put some money into it themselves?

Doctor MEAD. Yes. Now, I will say that this has been our policy in the establishment of these stations: In the first place, it must be in a district where the conditions are such that experiments would be of benefit to a large number of people. Preliminary to doing anything in Colorado, we employed a man who was familiar with the country, who was formerly connected with the State experiment station, and had been employed by the station to study the State, to look over the whole of that region in Colorado and find out just what was being done, where the settlements were made, where they were winter irrigating, where there were large quantities of soil water; and as a result of his study of the State, running over five months, he reported that there were two places in the State that had the greatest advantages, would be accessible to the most people, and would lead to the largest extension and the largest adoption of that kind of irrigation.

Now, then, the next thing is to have it close to a town, so that people can come and see it, because actually seeing it is worth a great deal more than a bulletin or an illustration. The advantage of the station at Cheyenne was the fact that there were three railroads coming in there, so that people could come in and look it over. And so, in the station in Colorado, we have it on a part of an old town site. It is a part of one of the boom towns there.

Mr. BROOKS. One of those same towns that were depopulated after the last influx?

Doctor MEAD. Yes.

Mr. HAUGEN. Now, what is necessary for all these farmers to do in order to take care of themselves in these dry years? What will the educated farmer have to do?

Doctor MEAD. We will have there a reservoir that will be 100 feet by 200 feet, which will hold 4 feet of water. It will enable

us to irrigate 5 acres of land; it will give us a good head, and that enables us to use a small pump.

Mr. HAUGEN. How large a pump?

Doctor MEAD. Small capacity. We will use a 6-horsepower engine.

Mr. HAUGEN. What will be the number of gallons?

Doctor MEAD. Oh, it will carry about 20,000 gallons a day.

Mr. HAUGEN. About 6 horsepower?

Doctor MEAD. Yes.

Mr. HAUGEN. How much of the time would it have to run?

Doctor MEAD. Well, we want it to run twelve hours.

Mr. HAUGEN. Out of every twenty-four?

Doctor MEAD. Yes; just during the time that the man who is applying that water can—

Mr. HAUGEN. Just during that time?

Doctor MEAD. Just during that time. He will look after it.

Mr. HAUGEN. And how much time would that be? How often would it have to be?

Doctor MEAD. It will run every day in the summer months.

Mr. HAUGEN. The whole summer?

Doctor MEAD. Yes; it will run ever day.

Mr. HAUGEN. How much would that pump cost?

Doctor MEAD. I could not tell you. We have not purchased it.

Mr. HAUGEN. Well, you have an idea of what the whole outfit would cost?

Doctor MEAD. The whole apparatus would cost, probably, about \$500, for the reservoir and pump and a good well.

Mr. HAUGEN. You could put up the whole for \$500?

Doctor MEAD. Yes.

Mr. HAUGEN. Well, that would depend on the depth of the well, would it not?

Doctor MEAD. Yes.

Mr. HAUGEN. What is the depth of the well?

Doctor MEAD. Well, that is a deep well; we will go down about 80 feet.

Mr. HAUGEN. For instance, in Colorado quite a number of people have settled east of Denver on the flats there. I think they have to go somewhat deeper.

Doctor MEAD. In some places.

Mr. HAUGEN. Have you been experimenting there?

Doctor MEAD. Yes; we have the records of the whole of Colorado, from Denver west.

Mr. HAUGEN. I think the wells are probably 200 feet deep in some places.

Doctor MEAD. Yes.

Mr. HAUGEN. How much would it cost to put a well down 200 feet?

Doctor MEAD. Well, to put down your well and casing you would have to pay about \$2 or \$2.50 a foot for the first 100 feet; and you would probably have to pay more than that, depending on the ground, as you went farther down.

Mr. HAUGEN. Does that include the casing and drilling and all?

Doctor MEAD. Yes.

Mr. HAUGEN. How much power would be required to do the pumping in a 200-foot well?

Doctor MEAD. For 5 acres?

Mr. HAUGEN. Yes.

Doctor MEAD. About a 10-horsepower engine.

Mr. FIELD. What size of pipe do you use in these wells?

Doctor MEAD. In the one that we are putting down at Eads we are using 12-inch; the ones at Cheyenne were 10-inch.

Mr. HAUGEN. You said that you had been investigating the relative cost of gasoline and alcohol?

Doctor MEAD. Yes.

Mr. HAUGEN. What were the results?

Doctor MEAD. There was very little difference in the cost; that is, there is very little difference in the work they will perform. A gallon of alcohol will do just about the same work as a gallon of gasoline.

Mr. HAUGEN. In pumping?

Doctor MEAD. Yes, sir.

The CHAIRMAN. What is the difference in cost?

Doctor MEAD. I don't know what is going to result from denatured alcohol.

Mr. HAUGEN. Were you using the wood alcohol?

Doctor MEAD. No. In our tests we were able to get alcohol for testing with the duty off.

Mr. SCOTT. Assuming that the price of alcohol and gasoline is the same, and that the duty is the same, which is preferable, and for what reason?

Doctor MEAD. Alcohol is preferable on account of its greater safety; less liability of explosion. It is preferable also because it does not run an engine quite as badly as gasoline. But probably it needs a little nicer adjustment of an engine to get the full effect out of it; because it has to be operated under greater compression, and hence it is more likely to get out of order. So there are the two sides. But if the making of alcohol is taken up with a view to utilizing waste products, such as unsalable potatoes, refuse from sugar-beet factories, etc., in those sections of the West which are remote from railroads, alcohol, I believe, will be cheaper than gasoline.

Mr. HAUGEN. You think it can be made cheaper?

Doctor MEAD. Yes.

Mr. HAUGEN. Now, you have investigated as to various makes of pumps. What make do you suggest to these farmers to buy?

Doctor MEAD. We have not got to that point yet.

Mr. HAUGEN. Do you propose to do that after you get to that point?

Doctor MEAD. We will probably do this: We will be able to tell them whether to buy a well made and comparatively dear engine rather than a cheap grade of engine; or the reverse, if they can use the cheap engine and get just as much out of it. There are two distinct classes. You can put a line right down, and on one side of it are engines that are made with certain attachments and a certain degree of excellence that makes those high-priced engines; and on the other side are engines that are defective in regulation, made with fewer parts, which are cheap engines. There is quite a difference in the price of them.



Mr. HAUGEN. You said certain manufacturers had sent you an engine for trial?

Doctor MEAD. Yes.

Mr. HAUGEN. Well, was it not with the purpose of advertising these engines?

Doctor MEAD. No.

Mr. HAUGEN. Are they not liable to work some scheme of advertising through it?

Doctor MEAD. I don't think so. I think we will look out for that.

Mr. HAUGEN. Well, I think we should. I do not think we should advertise anyone at the expense of the Government.

Doctor MEAD. Oh, no.

The CHAIRMAN. You ask for a certain increase here.

Mr. BROOKS. May I ask Doctor Mead one question first?

The CHAIRMAN. Certainly.

Mr. BROOKS. Doctor Mead, would you say that you could or could not, in the great majority of cases, provide an ordinary farmer so that he could withstand a drought of one or two years without losing his investment in that region?

Doctor MEAD. I think there is no doubt of it. I think that any man that is in a position, either by storing storm water or (in those localities that have a deep subsoil) by winter irrigation and by wells, to irrigate 5 acres of land can live.

Mr. BROOKS. And unless he can adopt some such plan as that, from your experience of twenty-four years in that region, is there any way to prevent his losing his investment if there comes a period of dry years?

Doctor MEAD. No.

The CHAIRMAN. Now, the result of all this will be, if your scheme is successful, that during the cycle of heavy rains he may make a little money and during the cycles of dry weather he would be at a standstill?

Doctor MEAD. Yes, sir. During the cycle of wet weather he will make a great deal of money.

The CHAIRMAN. On 5 or 10 acres?

Doctor MEAD. No. This is to be used in connection with the cultivation of a larger area of land by dependence on rainfall.

The CHAIRMAN. Then on a big scale he would get no bigger return for his capital invested, after all?

Doctor MEAD. No; but the wet years then will be years of very great prosperity.

The CHAIRMAN. And the dry years will lick up his prosperity, and at the end of eight or ten dry years he would be just where he was before?

Doctor MEAD. No; not with cultivation.

The CHAIRMAN. It is not a thing for a man to go into with the idea of making any more than a bare living?

Doctor MEAD. Well, the difficulty with dry farming alone is that you can not estimate the hazard of it. You could not figure on coming out even or anything else. That is altogether a hazardous enterprise.

Mr. HAUGEN. Now, what is the estimated cost of this supply of water for the 5 acres per annum?

Doctor MEAD. The probabilities are that the outfit itself will cost anywhere from \$300 to \$500. Then it will cost whatever it costs to operate your machinery or to operate the ditch. Now, that is what we are endeavoring to find out.

Mr. HAUGEN. Well, you have a station, and I suppose you can keep track, can't you?

Doctor MEAD. Well, we have just started on this work.

Mr. HAUGEN. Haven't you an idea about the number of gallons that can be pumped by a 6-horsepower engine in twelve hours?

Doctor MEAD. We have a great many figures on pumping.

Mr. HAUGEN. What conclusions have you reached during the six months that you have been operating under the appropriation bill commencing July 1, 1906? What definite conclusions have you reached?

Doctor MEAD. This: That all the farmers need is definite instructions about how to select their machinery, how to lay out their irrigation, and the methods to be followed; that it will pay, if they do the work in the right way. But we have reached this definite conclusion, that before we undertake to advise them definitely about that, we must know more than we know now about some of the questions connected with building reservoirs, and some of the questions connected with the operating of pumping machinery on a small scale in this way, in order to give them practical advice about the difficulties that they will encounter.

Mr. HAUGEN. Well, I should think the very first thing you would ascertain would be the cost of the operation of your machinery. If it costs \$400 to operate machinery to irrigate 5 acres of land, we would know before starting that it is practically impossible to do so.

Mr. BROOKS. Oh, nobody could afford to spend \$400 or \$500 for a water supply for 5 acres.

Mr. LEVER. He would not have to spend every year that much, would he?

Doctor MEAD. Let me understand your question. You want to know the cost of operation from year to year?

Mr. HAUGEN. Yes; for so many acres.

Doctor MEAD. That cost will vary, we will say, from \$1 an acre up to \$5 or \$10 an acre. Those will be the limits. If it went to \$10 an acre, then it would not be profitable.

Mr. HAUGEN. To begin with, how many gallons of oil would it take to run one of those 6-horsepower engines? It would take at least 5 or 10 gallons—not less than 5?

Doctor MEAD. Well, I would not undertake to give those figures offhand.

Mr. HAUGEN. How can you estimate the cost per acre unless you estimate the cost of operating this pumping machinery?

Doctor MEAD. We have that, but I would not undertake to give it to you from memory. Now, we have the result of pumping—

Mr. HAUGEN. Well, but see here. We know the price of gasoline—about 22 cents a gallon.

Doctor MEAD. Yes.

Mr. HAUGEN. Well, I am quite certain that it would not take less than 5 gallons, and 5 gallons, at 22 cents, would be \$1.10. You have to do the pumping for several months, and you have an expense of \$1.10 a day. That would be \$33 every month for 5 acres.

Doctor MEAD. It does not take that much gasoline.

Mr. HAUGEN. Possibly not.

Doctor MEAD. No.

Mr. HAUGEN. I simply make that estimate, basing it on what it requires to run an automobile.

Doctor MEAD. But an automobile is a much more expensive type of machine than a pumping engine.

Mr. HAUGEN. You think it would require less than 5 gallons?

Doctor MEAD. Yes, sir.

Mr. BROOKS. Your estimate would still stand that a maximum of \$10 an acre would be a fair estimate of the cost?

Doctor MEAD. Yes. We have the results on a larger scale from hundreds of places where gasoline is used.

Mr. HAUGEN. When you say a large scale, how many acres does that include?

Doctor MEAD. Anywhere from 20 to 200.

Mr. HAUGEN. Yes. Well, what are the results? What is the cost?

Doctor MEAD. The expense runs all the way from \$2 to \$10 or \$12 an acre.

Mr. HAUGEN. Then you pump the water about 40 feet?

Doctor MEAD. We pump it all the way from 10 feet to nearly 200. You see, as you get very large machinery you can use much more effective machinery and the price per foot of lift goes down.

Mr. HAUGEN. One other question and I am through. A number of parties are concerned in building large water reservoirs and selling these water rights to settlers. Do you investigate as to the supply of these people with a view to protecting the settlers against buying something that is not in existence? Have you any knowledge of that?

Doctor MEAD. We have not gone into that feature. That is left almost entirely to the States.

Mr. HAUGEN. I know of a number of people who went out into the Western States and bought farms and bought water rights, paying, I think, \$20 or \$25 an acre. The question arose in my mind whether the supply of water was sufficient.

Doctor MEAD. What we have done has been to give advice to hundreds and hundreds of people as to the amount of water that they will need.

Mr. BROOKS. One question there. This experiment that Doctor Mead is conducting has nothing to do with the lands that are to be supplied from these large irrigation schemes. The area that he is attempting to cover is the area that is outside and the area that is being settled up very rapidly by boomers and by hundreds of people from your State and from Kansas and Nebraska. The proportion of this 300,000,000 acres that will lie under these irrigation schemes is very small comparatively; I have no figures, but roughly I would not say it would be a tenth.

Mr. HAUGEN. The object of my question was to find out whether there is any way of ascertaining the supply.

Mr. BROOKS. The supreme courts of the various States will tell you, and that is the only way I know of.

Mr. HAUGEN. An ordinary man would not know what a certain reservoir would supply; it takes an expert. These people do not know anything about it, and they go out there and buy the water

rights and pay the cash for them. What I am afraid of is that after a while they will find possibly that the reservoir does not come up to their expectation, and they will be disappointed. There ought to be some protection against that.

Mr. BROOKS. There ought to be, but when that time comes they will want the very experiments that Mr. Mead is conducting.

Mr. HAUGEN. Oh, I am in favor of this experiment.

Doctor MEAD. We are doing something along the line that you are speaking of, in one way. A great many of the companies that you are speaking of—and that is in another field of irrigation from the one we have been talking about—

Mr. HAUGEN. Yes; I know that.

Doctor MEAD (continuing). Provide a certain amount of water for irrigation; and we get, as I say, hundreds of inquiries every year from men who do not know anything about it to know if that contract provides them the water that they need; whether it is enough. Now, that is where the study and work that we have been carrying on for years past come in. We are able to tell them in nearly every part of the United States.

Mr. HAUGEN. I was very much interested in your statement two years ago about the seepage, etc. Now, would it be possible to connect this work with the work that you are doing? Would it be much of an expense for you to ascertain the supply and the possibility of these people complying with these contracts?

Doctor MEAD. Well, there are a great many places where we can give that information—that is, if they are places where we have been carrying on work and where we have had reason to look into the conditions. But the West is so large that there are a great many streams that we have never visited as yet and about which we have no information.

The CHAIRMAN. How do you propose to use this increased appropriation that you ask for—to have more demonstration farms?

Doctor MEAD. No; we intend to carry this work on just in the way and at about the same expenditure that is provided this year.

Mr. LEVER. Mr. Chairman, before he goes into that, I would like to ask Mr. Mead to give us some further information. He has been talking about that arid region out there; about taking the water off of that land and putting the water on the land. Let Mr. Mead tell us something about his drainage experiments, unless it comes a little later in the bill.

Doctor MEAD. I think I can answer the chairman's question and then go on.

Mr. LEVER. Very well.

Doctor MEAD. In our irrigation work a part of the increase is to enable us to employ three additional men to give practical advice and direction to irrigators in communities that are being settled up, where whole communities are having very serious difficulty in knowing how to prepare their land and apply water. Three years ago we placed, in western Texas an expert irrigator from California, who held farmers' institutes in the towns, and had diagrams, and showed those farmers who were just taking up irrigation how to prepare their land, how to lay out their levels, how to grade the fields, and how to apply the water. We had expected to keep him in that section of Texas for one year and move him away; but every attempt to move

him has brought us hundreds of letters—not hundreds, but a great many letters—explaining how practically useful he was.

We have had the same sort of requests from other places, which we have had to deny. Part of this increase is to enable us to put one man in what is known as the Big Horn basin, where there is nearly half a million acres of land being brought under irrigation, to give those people advice about how to grade their land.

Mr. BROOKS. Would men coming into this area know anything about irrigation?

Doctor MEAD. No; a great majority are directly from the East.

Mr. BROOKS. Let me give one incident which came under my personal observation. This fall I went out to Colorado and visited one town in the eastern part of the State, 75 miles east of my home. I found that they were colonizing that country from the rain belt of eastern Kansas, and they had come into that section literally—not by and large, but literally—by the hundreds. And they were not men without some little means. On an average, I suppose, they had sold some farm in eastern Kansas and had gotten \$6,000 or \$8,000 or \$10,000. The machinery agents were there selling them steam plows, and they were buying them, putting \$2,000, or \$3,000 in some instances, into the machinery with which to run those dry farms; and as sure as season follows season, the time is coming, and in two or three years, when that machinery will not be worth junk, unless there is some auxiliary and ancillary method of making it useful.

There is one outfit in northern Colorado which is bringing people from Iowa in train-load lots. They go out and get special rates, and they are bringing out train loads of home seekers, and they usually catch about half of them. Those men are accustomed to the rain conditions of eastern Iowa, and have not the first idea of irrigation. Some of these lands I happen to know. They cost from 40 cents to \$1.20 an acre. They have been sold this year at all the way from \$4 to \$12 an acre to these men.

Mr. HAUGEN. They just throw away that much money, that is all.

Mr. LEVER. Why don't these people go south and settle in the good land that we have down there, where we have rain; in God's country?

Mr. BROOKS. You don't have such good boomers.

Mr. LEVER. That may be.

Mr. BROOKS. I want Mr. Mead to explain a little further along the line of Mr. Lever's suggestion. He has done some very interesting work in drainage, and I would like to have him tell us something about that.

Doctor MEAD. I will say that the work along that line is the only extension in our work that is provided in irrigation. Requests for that kind of work have come to us from the governor of Oregon, from Wyoming, and a number of places in Idaho, where eastern people are settling.

The CHAIRMAN. Are the experiment stations doing anything along these lines?

Doctor MEAD. Oh, yes.

The CHAIRMAN. Are they doing anything in cooperation with you? Are they spending any money in helping you out at all?

Doctor MEAD. Yes; they are cooperating with us. It is simply a big field.

The CHAIRMAN. Those people you have mentioned, you know, are citizens of those States. It seems to me the States ought to take care of them, look after them, and help them; not the United States.

Mr. HAUGEN. Is it not possible that the work that you are doing now is encouraging these people to settle in this arid land; bringing on the suffering and the trouble and the hereafter?

Doctor MEAD. Well, they are there all right.

The CHAIRMAN. And now they are so poor that they can't get out of there.

Doctor MEAD. Now, take the situation in Oregon. There is a section of the country in which the people who are coming in know nothing about how to grade land and how to prepare their fields; and the work that we did there two years ago was of such a practical benefit to the people there, and saved so many of them from making a waste of their time in trying to learn these things for themselves, that we have had requests from the governors, boards of trade, and farmers themselves, innumerable. Now, all that we intend to provide for there is simply to take up one of the best districts and send one expert there, and make that an object lesson. Then we have some additional work—that comes more directly under our drainage work. Now, the only increase is along that line, and a certain increase in our expenses in the irrigation work. Up to the passage of the rate bill, the railroads in the Western States have been very generous with us in transportation, and we have accepted it, and it has saved us quite a considerable expense. Now, whenever one of our men goes from one place to another, in his field of labors, he pays his fare, and that will add something to our expenditures.

Mr. LEVER. Now, Mr. Mead, what proportion of this appropriation here do you expend in this semiarid region on this dry-farm work?

Doctor MEAD. About one-fifth of it.

Mr. LEVER. Does the balance of it go to drainage operations and experiments?

Doctor MEAD. It is probable that our expenditures will be divided about evenly.

Mr. LEVER. Half and half?

Doctor MEAD. Yes; a little more, perhaps, for irrigation than drainage.

Mr. LEVER. Isn't it your opinion that drainage is a much more important proposition than opening up a few million acres out there?

Dr. MEAD. Well, it is a much more important proposition in the eastern half of the country; it is not in the West.

Mr. LEVER. How many millions of acres of overflowed swamp lands are there out in this country; have you any statistics?

Doctor MEAD. There are about 20,000,000 acres.

Mr. LEVER. And how many million in this semiarid region?

Doctor MEAD. It so happens that there is just about as much land needing reclamation by drainage as is believed can be reclaimed by irrigation. They come very nearly balancing.

Now, if there are no more inquiries about the irrigation, I will take up the drainage work.

The drainage work, as you all know, is taken up in connection with the relief of water-logged and alkali land in the West. In that work we have been assisted by a number of the States—Utah, Nebraska, California—and the work has been of great practical use—

fulness. Now, we have to make a careful study of districts, and we have advised regarding drainage plans, and large drainage districts have been formed that have brought back lands that were worthless. I think I called your attention last year to the results in the Yakima Valley and the reclamation of the lands there. Now we are carrying on work of that character in Utah and in California, where in the Fresno district there is an area that is 25 miles square that has been almost ruined by the rise of the water in the soil, and will have to be drained. We have also been asked during next year to take up two large important districts in California, the Modesto and Eureka, where the ground is rising.

The CHAIRMAN. You know how to handle that matter, don't you? It is with tile draining, is it not?

Doctor MEAD. Yes. It is altogether in an advisory capacity, and there is quite a problem in northern California—a large area of land that is known as "goose land" locally because of its swampy character.

Mr. BROOKS. Well, it gets its name from Goose Lake, does it not?

Doctor MEAD. No. It is in the Sacramento Valley, starting about 30 miles north of Sacramento, and running up for 20 or 30 miles farther. That we had included in our work for next year.

Mr. BROOKS. Does the State of California make any specific appropriation?

Doctor MEAD. Yes; the State of California makes an appropriation of \$15,000 for two years, and assists.

Mr. BROOKS. Is it specified that that shall be used in cooperation with you?

Doctor MEAD. Yes; that is expended under our direction.

Mr. BROOKS. That is a feasible thing, isn't it?

Doctor MEAD. Yes; it is a good idea. The State engineer of Colorado will recommend this year that Colorado do likewise.

Mr. BROOKS. If any extension of this work were contemplated, would it be your judgment that it would be wise to insert a condition that it should be limited to States which cooperate with us?

Doctor MEAD. No; I don't think I would do that.

Mr. BROOKS. I do not mean as to the old appropriation.

Doctor MEAD. You mean as to any increases?

Mr. BROOKS. Yes.

Doctor MEAD. Well, I think that would be a very good idea, because, as the chairman has said, it is their problem as well as that of the Federal Government.

The CHAIRMAN. These people are their citizens.

Doctor MEAD. And this cooperative work has worked well. We have never stopped that line of work where we have once started, because the State gets the benefit of men who have had a broad experience—experience outside of the State—and who are handling these difficult questions all the time.

Mr. BROOKS. Have you many requests for new work; that is, is this drainage work growing on your hands?

Doctor MEAD. Yes; we have a great many that we can not consider at all. What we are endeavoring to do in our drainage work is to do work that will deal with large interests and increase the knowledge of drainage practice where it will give us a better understanding of how to go at these things hereafter.

Now, the most important field of our drainage work is in the East, and the largest problems that we are dealing with now are along the South Atlantic seaboard. In South Carolina, for example, there is a stretch of country that runs along the entire coast, and it is from 15 to 50 miles wide. The greater part of it is exceedingly fertile; but it is useless to-day, and it is not only worthless for agriculture, but it is a menace to the towns. Take the city of Charleston. Until the land immediately around it was drained it was impossible for a white man to live in the suburbs of Charleston in the summer months. I think Mr. Lever will say that I am not exaggerating that.

Mr. LEVER. That is true, sir.

Doctor MEAD. Now, since it has been drained the land values there have gone up until some of those lands have sold for \$200 an acre, and the health conditions have entirely changed. Now, we have taken up there, in cooperation with the sanitary and drainage commission of the State, a study of their drainage problem along that line, and have made for the State Agricultural College a plan for the drainage of a certain area that has been given to the State experiment station in order to demonstrate what can be done with those swamp lands. The commission is cooperating with us and assisting us in these investigations now, and it is intended to broaden the scope of this work.

Mr. SCOTT. In California and in Utah, where you have spoken about installing drainage to relieve the ground of alkali, I can easily understand that there is a research problem there which requires expert study. Is there any such trouble as that in South Carolina, for example?

Doctor MEAD. In part; yes, sir; and in part it is simply giving them the benefit of expert advice about the method of going about this.

Mr. LEVER. In South Carolina your work is more educational than otherwise, is it not?

Doctor MEAD. Yes.

Mr. HAUGEN. Now, what are those methods, and what is that expert advice—on what line? Is there anything outside of digging a ditch, or placing a tile, or anything of that kind?

Doctor MEAD. No; but there is a great deal of difference in the way of digging ditches, and the location of ditches, the distance apart, and whether they shall be open ditches or tile ditches.

Mr. BROOKS. Well, those differences depend upon localities a good deal, do they not? That is to say, some land can be drained by one system of ditches, while other land must be handled in a different way?

Doctor MEAD. Yes; certainly.

Mr. HAUGEN. You would not expect a man to have a tile ditch costing at least \$10 an acre on land that would not be worth \$2 after it was drained?

Doctor MEAD. Oh, no.

Mr. HAUGEN. As I understand it, in many parts of the country good land—dry land—is selling at \$2 and \$3 an acre. You can't expect them to tile at large expense, \$10 or \$15 an acre?

Doctor MEAD. Well, we have not been called on to give any advice in conditions like that.



Mr. SCOTT. Doctor Mead, my question was suggested by this thought, that the people of this country have been draining swamp lands by means of tile and open ditches ever since the country was settled, you might say, and it struck me as a little strange that there should still remain any real troubles in connection with that work.

Doctor MEAD. Yes; I can understand that. Before I began the study of the drainage question that was exactly the feeling that I had. But when you come to see the problems that are in it, when you really come to get into the mastery of drainage, you find that there are a great many unsettled questions.

Mr. SCOTT. You find, then, that men have been working at a disadvantage; that they have been doing work in too costly a way, or something of that sort. Is that the idea?

Doctor MEAD. Yes. Let me give you one illustration: The swamp lands of Illinois, when drained, needed a certain kind of fertilizer to bring them into full bearing. The swamp lands of Wisconsin, when drained, would not respond at all, and so there grew up a great question in Wisconsin as to whether draining was profitable or not, a great many holding that the surest way to ruin your land; that you could do something with it when it was a swamp; you could cut ice off of it then; but that after it was drained it was worthless. Now, there was a fundamental question as to whether drainage was a benefit or an injury. And then, in the tule lands of California there is a soil that is very peculiar; it holds water like a sponge, almost. It is a great question there as to whether drains will relieve that land or what will happen or how far apart those drains ought to be. You are dealing, because of the peculiar character of that soil, with an entirely new problem in drainage. You can not find anywhere in literature or in experience anything that will definitely answer that.

Now, we go to Florida—there is the largest work that we have undertaken—at the request of the governor and the Congressional delegation. In southern Florida there is a tract of swamp land that covers nearly a third of the State. Almost half of Florida is swamp. The State has made an appropriation and begun work on the drainage of those lands; that is, they bought the machinery and started in to drain. Then the question came up as to whether drainage was feasible, or what would happen if they attempted to drain, and we have been asked to answer that question. It is a great, big question, this one of drainage.

Mr. SCOTT. As a matter of fact, you can't tell until the drainage has taken place, can you?

Doctor MEAD. Oh, I think we can; yes, sir.

Mr. HAUGEN. Now, you have gone to all these places. What did you discover? What benefit do we have from that?

Doctor MEAD. In Wisconsin, for instance, it was our conclusion that those lands could be profitably drained, and that was as far as our work went. They are now draining them and it is profitable.

Mr. HAUGEN. What change in the drainage did you suggest to make it profitable?

Doctor MEAD. It was simply a determination of that question. But those have to be treated differently from the lands of Illinois.

Mr. HAUGEN. What was the treatment in Wisconsin?

Doctor MEAD. The application of a different kind of fertilizer. One requires nitrates and the other phosphates.

Mr. SCOTT. You could not make that application of fertilizer until the lands had been drained, could you?

Doctor MEAD. No.

Mr. SCOTT. That was what I meant a little while ago when I asked you whether you could determine whether the lands were worth draining until they had been drained and you could make your application of fertilizer and follow up that treatment.

Doctor MEAD. Well, here it was simply a case of a man who had had wide experience in drainage expressing his judgment. He could not tell; he could not be absolutely certain of it. He could only advise as to the probabilities, and then advise as to the subsequent handling.

Mr. BROOKS. And you could make a small experimental test there which would be proof of the pudding?

Doctor MEAD. Yes; and that is what we are doing in a great many cases where it is a matter of doubt.

Mr. HAUGEN. Have you carried on any experiments with drainage in Iowa?

Doctor MEAD. We have never carried on any experiments, but we have acted in an advisory capacity in a great many of your districts there with regard to questions about which they were in doubt.

Mr. HAUGEN. While riding on the train last summer, some one on the train pointed out to me a large flat of ground which was covered with ducks. It seems that some eastern party had come into Iowa, acting under the instruction and advice of some scientists and others with a certain knowledge of drainage, and invested several thousand dollars for drainage. He got nothing but ducks, and never has since.

Mr. CROMER. He got a good crop of ducks.

Mr. HAUGEN. A very good crop of ducks. Have you had any such experience?

Doctor MEAD. No.

Mr. HAUGEN. This is a large tract of land, of several sections.

Doctor MEAD. I think I can state with great confidence that nothing of that kind has ever happened where we have been consulted.

Mr. HAUGEN. Exactly what you have done in South Carolina? Did you go yourself or send a man down there?

Doctor MEAD. We had a party down there; yes, sir.

Mr. HAUGEN. Now, what did that party actually do in actual work?

Doctor MEAD. They have prepared a plan for the drainage of the parishes surrounding Charleston.

The CHAIRMAN. For individual owners?

Doctor MEAD. Well, the work is being done by the State commission.

The CHAIRMAN. But you said your party prepared plans?

Doctor MEAD. We prepared it for the commission, not for individual owners—for the State commission or, rather, the district commission.

The CHAIRMAN. What were those plans?

Doctor MEAD. They showed where drains should be dug.

The CHAIRMAN. You first surveyed the land?

Doctor MEAD. Yes.

The CHAIRMAN. And got your grades?

Doctor MEAD. Yes.

The CHAIRMAN. And then laid out your ditches on the plat or working plan?

Doctor MEAD. Yes; we just made a working plan for the commission. Now the commission is building those drains with convict labor.

The CHAIRMAN. And that will be eventually farm land, or is it close enough to Charleston for—

Doctor MEAD. Farm lands.

Mr. LEVER. They are used for trucking purposes.

The CHAIRMAN. The lands are owned by individuals?

Doctor MEAD. Yes.

Mr. HAUGEN. How do you treat these peat marshes when they are drained?

Doctor MEAD. We have never had that problem to deal with yet.

Mr. HAUGEN. You spoke of Illinois?

Doctor MEAD. That was the farm land there.

Mr. HAUGEN. They have considerable peat marsh in Illinois, have they not?

Doctor MEAD. The lands that I was thinking of in Illinois were not peat marshes; they were the black soils.

The CHAIRMAN. Let me insert one more question about this South Carolina business. Do you know whether the owners of those lands pay the commission for the ditching?

Doctor MEAD. I don't know.

The CHAIRMAN. Who pays the cost of that ditching, in other words?

Doctor MEAD. I think that the ditching is done by the State.

The CHAIRMAN. By the State for the benefit of the individual?

Doctor MEAD. It is done by the commission, and then the commission repays the State in taxes. I think that is the case.

The CHAIRMAN. Sends it back on the land?

Doctor MEAD. Yes.

The CHAIRMAN. We do that in New York. It is done under the drainage laws.

Doctor MEAD. Except that in ordinary drainage law it is just a commission of the landowners that handles this. This is a commission that is under the authority of the State.

The CHAIRMAN. Now tell me, Doctor Mead, what have your people done there in South Carolina that a good State engineer with his corps of engineers could not have done?

Doctor MEAD. Well, if you had a good one, I think he might have done just as well as we did. We are not claiming that we do any more than anyone else could do.

The CHAIRMAN. But your people have had rather a wider experience than the local men?

Doctor MEAD. They have a broader experience. I want to explain about this. I do not take it that you are speaking seriously.

The CHAIRMAN. I think we go too far. You know I have always thought that. It is an individual opinion, but I have always felt that there was too much paternalism in the care of the Department

appropriations. I have always contended against it—ineffectually, I am sorry to say.

Doctor MEAD. Well, it is against the tendency of the times. This was the situation down there that led us to take hold of this matter. Here was a whole section of a State that was discouraged, poor, and there was a great difference of opinion as to whether it was feasible to do anything. Now I do not believe it would have been possible from inside the State to have worked that as effectively as to have men who were known to have had wide experience in that particular work take hold and assist it by expert advice.

Mr. SCOTT. In other words, you think your work inspired more confidence than the work of local people would have done?

Doctor MEAD. Yes. And it is of such value in the way of developing the country. South Carolina is a part of the United States. It is certain that no work that the Department does, or any other Department does, has brought larger returns in the upbuilding of the nation.

Mr. LEVER. Do you say that some of that drained land sold for \$500 an acre after your experience down there?

Doctor MEAD. After it was drained; yes, sir.

Mr. HENRY. Practically it was worthless?

Doctor MEAD. It was worse than worthless, because it was a menace to the surrounding country.

Now, going on, there is a work that we ought to undertake this year—

Mr. BROOKS. Before you go into that, there is one question which I omitted to ask you, and which I think will be important. For two successive years now you have elaborated these propositions with regard to your irrigation work, and particularly in the dry farming, and Doctor Galloway has come on and elaborated what his Bureau has been doing in dry farming, and they are doing a great deal. Now, is there any conflict between your two Bureaus, and is there any duplication of work there?

Doctor MEAD. Absolutely none. It is a clear-cut line. He is showing what can be done with dry farming—

Mr. SCOTT. Without water?

Doctor MEAD. Without water. We are showing what can be done in the way of irrigation to create better conditions and protect the dry farm. The two lines are as clear-cut as any two lines of Government work.

The CHAIRMAN. His experiments cover the conservation of the spring and winter rains in deep plowed lands, do they not?

Doctor MEAD. I think good cultivation is a feature of it; yes, sir.

Mr. BROOKS. Let us have no misapprehension of that. Doctor Galloway's work is wholly in cultural methods and in the deep plowing and subsoiling and things of that sort. He has nothing to do with conservation or surface or subterranean waters, except as it naturally follows a little, of course, from the deep plowing. The deep plowing is this Campbell soil culture, if there is anything to it.

Mr. HAUGEN. Well, Doctor Galloway's line of work is teaching how to treat the soil, is it not?

Mr. BROOKS. Yes.

Mr. HAUGEN. The ground?

Mr. BROOKS. And the crops.

Mr. HAUGEN. But I understood you to say that you were teaching them how to treat the soil, for instance, in Wisconsin.

Doctor MEAD. Oh, not at all, only where it is a drainage problem; where there is a feature of drainage.

Mr. HAUGEN. I understood you to say you had made no study of the peat marshes at all?

Doctor MEAD. No, sir. The only study we have made of the peat marshes is their capacity to hold water and the way drains ought to be placed in them—the depth and distance apart. We have done very little with that.

Mr. HENRY. Can you make anything of the peat lands after they are drained.

Doctor MEAD. Why, I think so; there are some of them that you can—the California land, for instance—

Mr. HENRY. I mean lands that are properly peat lands—fuel material?

Doctor MEAD. Oh, no; no.

The CHAIRMAN. You were about to take up something else, Doctor Mead, were you not?

Doctor MEAD. Yes. I wanted to have you understand this feature of work like that at Charleston, or any of the other work; that in doing this work we always keep the feature of investigation, of the development of irrigation practice, of dealing with new conditions. In our bulletins and reports and through all our work the investigation side is constantly being strengthened by every piece of work that we do.

Now, going to one of the pieces of work that we think should be taken up this year, that is a study of the method of reclaiming the tide marshes. Along the whole Atlantic seaboard there is one of the largest bodies of unused land, a great deal of it in our cities; and we are getting a great many inquiries as to how that land ought to be handled—what sort of plan should be adopted to reclaim those lands. We have had this fall three visits from members of the Massachusetts legislature about that. What we think should be done is to gather all the data that can be had on that subject, in this country and abroad, from the literature of it, and prepare a governmental report on the methods to be followed.

Mr. SCOTT. Are not those marshes below tide level?

Doctor MEAD. Only at high tide.

Mr. SCOTT. Well, is there anything to be done except to build a sea wall?

Doctor MEAD. That would be one part of it; yes, sir.

Mr. SCOTT. Is not that perfectly obvious? Do you have to spend very much money to find out that in order to keep the tide from coming in you have got to get something to keep it out?

Doctor MEAD. Oh, we know that. But the people who wish to do that work need to know more than is now known about the ability to build those walls; how to overcome the natural difficulties. It is not building a wall right straight along; you find that all those tide marshes are broken up by inlets. We must remember that we have got to consider not only the wall, but the way of getting over the water that is behind the wall. And there is a score of practical questions connected with it that we know nothing about. The idea

was to make a study of conditions in other countries and get out a report.

Mr. SCOTT. Have you made any estimate of the amount of money you would spend on that?

Doctor MEAD. We think probably about \$5,000.

The CHAIRMAN. Have you had any other applications for expert advice on the tide-water marshes except from Massachusetts?

Doctor MEAD. Oh, yes; we have had them from all along the sea-board—a great many inquiries.

The CHAIRMAN. Now, what is the hope of those tide marshes; what would be your idea of what can be done with them?

Doctor MEAD. Well, I believe, in a general way, that the tide marshes of this country will mean more than they do to Holland and Germany; that we are going to reclaim them, and we are going to take up that work in the very near future.

The CHAIRMAN. They have done it in Holland, but it is a system of dikes and pumping the water out, isn't it?

Doctor MEAD. The same question we have; no more difficult.

The CHAIRMAN. In fact, we will need them to support the population, is that it?

Doctor MEAD. Yes.

Mr. SCOTT. It is because this work has been so thoroughly done in other countries that it struck me that there ought not to be much of a problem about it.

Doctor MEAD. Well, I don't think we will ever know that until we come to study it out in the light of what has been done in other countries. That is just what we want to find out.

The CHAIRMAN. Well, you can't study it until somebody dikes them and goes to pumping the water out, to see what the conditions are?

Doctor MEAD. See what the conditions are; yes. It is not necessary to dike them to do that. You can tell from the natural conditions.

The CHAIRMAN. Isn't it necessary to get the waters out first to find out what is necessary, just as you found out what was necessary in the marshes of Wisconsin?

Doctor MEAD. The water is out at low tide.

The CHAIRMAN. Is there not a certain soft saturation, though, that remains, that would disappear in time, after the water was cut out, and then the conditions would be different?

Doctor MEAD. Yes.

Mr. BROOKS. Doctor True made a suggestion to me. It is partly my fault—I directed Doctor Mead very largely to dry farming. That is only a small portion of his work in irrigation investigation.

The CHAIRMAN. Doctor, what headway are you making in getting uniform water laws throughout the several States? I remember when this irrigation paragraph was first started that was one point.

Mr. SCOTT. That was the only thing it was intended for.

The CHAIRMAN. Yes.

Doctor MEAD. Let me read a letter. It is a letter that came to-day. This is a letter from the professor of economics of the University of Oregon:

I am very much interested—

I will say that I was asked by a commission appointed in Oregon to meet with them in December, in respect to an irrigation law that this commission was appointed to frame, and I had a letter relative to that meeting from this professor.

I am very much interested in what you say as to the advisable policy of Oregon with her water-power resources. I am glad that the committee drafting the bill for the irrigation code secured your counsel. I believe, however, the measure they submit does not cover rights and titles to the use of streams for power purposes. I am very anxious to have a copy of your bulletin dealing with the water laws of Italy, and especially that portion of it covering the policy and requirement of titles to water. I was fortunate enough to get possession of a copy of your Irrigation Institutions three years ago, and have been impressed with the measure of influence it has developed in the different State codes. Its influence is not limited to matters pertaining to irrigation, for it illustrates so strongly and tangibly the idea of common interests and public utilities that this will be more easily discerned in the other relations of business and life.

That is a man who is studying. I simply read that letter because he is a student of these things in a broad way. And I think anyone who is familiar with the irrigation laws of the West will realize what a movement there has been toward uniformity and toward the adoption of those principles in water law that our investigation brought out as a result of its studies.

The CHAIRMAN. Disclosed as necessary for the proper and just division of the water?

Doctor MEAD. Yes, sir.

Mr. BROOKS. It is only just to Doctor Mead to say that that book on Irrigation Institutes has become a very authoritative publication in the arid-land States, and particularly in connection with inter and intra state problems. That is illustrated by this case that the Supreme Court now has under consideration relative to the question of the interstate rights between Kansas and Colorado. That is a test case for all those States. That is a big question; and this Department has done a great lot of work to solve it, too.

Doctor MEAD. And our work is not done. [Laughter.] Now, we are not asking for any money—scarcely any money—along that line now; but I want to read a part of another letter, which was written in Salem, Oreg., on the 2d:

There appears a considerable sentiment—

Now, I will say that in my meeting with that commission I advised them to take a further step in the protection of public interests in water than had ever been taken by any legislation heretofore, and that was with respect to the acquirement of titles to water, especially for power purposes; that those rights should be treated exactly like a franchise for a city; and, like a franchise for a city, should be limited to a definite number of years instead of being made perpetual. It used to be the case that whenever a franchise was asked for in a State they would issue a perpetual franchise just as readily as one limited in time. To-day no one defends that as correct policy. And I told this commission that that idea was new in this country, but that it was not new in Europe; and, in fact, it is the enlightened policy of Europe. So he says:

There appears a considerable sentiment in favor of limiting rights to the use of water for the development of power to a limited period of years, as suggested in your talk when in Portland. It appears that section 2—

then he goes on. So that that feature of our work, while not costing the Government anything, has not lost its vitality or its usefulness.

Whereupon (at 4.45 p. m.) the committee adjourned.

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SUBCOMMITTEE ON APPROPRIATIONS,  
COMMITTEE ON AGRICULTURE,  
HOUSE OF REPRESENTATIVES,  
*Washington, D. C., Saturday, January 19, 1907.*

The subcommittee on appropriations met this day, at 10.30 o'clock a. m., Hon. James W. Wadsworth (chairman) in the chair.

The CHAIRMAN. Doctor Howard, we would like to have a little talk with you in regard to the expenditures incurred under the cotton boll weevil and tick investigations.

**STATEMENTS OF MR. L. O. HOWARD, CHIEF ENTOMOLOGIST; MR. W. D. HUNTER, IN CHARGE OF INVESTIGATIONS, BUREAU OF ENTOMOLOGY, AND MR. BEVERLY T. GALLOWAY, CHIEF BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.**

Mr. HOWARD. Mr. Hunter, who is here with me, is more familiar—much more familiar—with the details than I am. How would it do to ask him, and let me sit by and listen? I think you would get more specific answers in that way, Mr. Wadsworth.

The CHAIRMAN. In regard to the cotton boll weevil?

Mr. HOWARD. Both as to the weevil and as to the tick. While I can talk in a general way, he can tell you about the particulars better than I can.

The CHAIRMAN. We want to know something about the expenses of these investigations.

Mr. HOWARD. Mr. Hunter has drawn up a general statement, which is before you now.

The CHAIRMAN. Then we will hear Doctor Hunter.

Mr. SCOTT. What we want, I think, is to get from Doctor Hunter the details of the expenses of the Entomological Bureau, with a view to ascertaining the amount expended for these various objects. For instance, as to the moths, we find there has been expended about \$30,000 for salaries, and I wondered what has been done with the other \$50,000.

The CHAIRMAN. Yes. Doctor Howard, your appropriation for moths in Massachusetts and the New England States was \$82,500, and you say: "Salaries: Special agent in Washington, \$1,200; 1 entomological draftsman, \$1,000; total per annum, \$2,200." Then out of Washington, "1 special agent, \$2,000; 1 special agent, \$1,800; 1 assistant at \$1,200; 1 at \$900." That is what you refer to, Mr. Scott?

Mr. SCOTT. Yes; in and out of Washington. I thought it amounted to \$35,000.

The CHAIRMAN. On page 35 you will find the lump sum for the Entomological Bureau. That is not the specific appropriation for moths.



Mr. SCOTT. I had in mind a different one. Oh, I see, it was the cotton-boll weevil, in the Bureau of Entomology, that I intended to refer to. There we find that the salaries in Washington are \$3,200, and outside of Washington \$32,210, and that makes \$35,410 out of a total appropriation of \$82,500, leaving about \$50,000 which must have been expended in some other way than in salaries.

Mr. HUNTER. That is for the fiscal year 1906?

Mr. SCOTT. Yes; for the fiscal year ending June 30, 1906.

Mr. HUNTER. Have you seen a copy of this statement? [Submits detailed statement in typewriting.]

Mr. SCOTT. That is for the calendar year 1906?

Mr. HUNTER. No; for the fiscal year ending June 30, 1906.

Mr. SCOTT. Of course this does not show what has been spent this year—in the fiscal year ending June 30, 1907?

Mr. HUNTER. No, sir; that is on a separate statement, which I will submit. [Submits following statement:]

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ENTOMOLOGY,  
Washington, D. C., January 19, 1907.

SIR: In compliance with the request of your letter of the 17th instant I transmit herewith (1) a statement showing expenditures from the cotton boll weevil investigation, Bureau of Entomology, 1906, and (2) a statement relating to the 1907 appropriation, including expenditures up to January 1, 1907, and liabilities from that date to June 30, 1907. These statements have been prepared in as much detail as the time permits.

Respectfully,

L. O. HOWARD,  
Chief of Bureau.

Hon. JAMES W. WADSWORTH,  
House of Representatives, Washington, D. C.

*Statement relating to appropriation for cotton boll weevil investigations, entomology, 1907, showing expenditures up to December 31, 1906, and liabilities to June 30, 1907.*

	Expended to Dec. 31, 1906.	Estimated to June 30, 1906.
Headquarters of investigation, Dallas, Tex.:		
Cotton seed .....	\$143.56	\$400.00
Fertilizers .....		8,000.00
Photographic supplies .....	89.90	150.00
Rent .....	240.00	240.00
Livery .....	240.00	240.00
Salaries—		
Entomologists—		
W. D. Hunter .....	1,875.00	1,875.00
W. E. Hinds .....	900.00	900.00
F. C. Bishopp .....	700.00	700.00
J. C. Crawford .....	700.00	700.00
W. A. Hooker .....	700.00	700.00
A. C. Morgan .....	700.00	700.00
W. D. Pierce .....	700.00	700.00
F. C. Pratt .....	800.00	800.00
W. W. Yothers .....	700.00	700.00
J. D. Mitchell .....	600.00	600.00
R. A. Cushman .....	600.00	600.00
C. R. Jones .....	550.00	550.00
W. H. Gilson .....	300.00	300.00
Clerks—		
Edward Blesi .....	600.00	600.00
Roy Sowell .....	450.00	450.00
Laborer, A. K. Pettit .....	210.00	210.00
Expenses for traveling, supplies, and labor incurred by above men .....	10,844.64	10,866.96
Expenses on trips of inspection by Chief of Bureau .....	114.40	200.00
Expenses, miscellaneous: Labor, furniture, supplies, post-office box rent, stationery, gas, electric light, drayage, express, etc. ....	480.00	400.00
Reserve fund for use in emergencies such as the eradication of isolated colonies .....		5,000.00

*Statement relating to appropriation for cotton boll weevil investigations, entomology, 1907, etc.—Continued.*

	Expended to Dec. 31, 1906.	Estimated to June 30, 1906.
<b>Headquarters of investigation, Dallas, Tex.—Continued.</b>		
<b>Contracts covering field experimental work with following parties—</b>		
M. L. Cavallin .....		\$83. 52
J. F. Skoberg .....		182. 00
C. O. Johnson .....		162. 36
P. A. Svenson .....		261. 82
B. F. Smith .....		91. 85
B. L. Holmes .....		18. 24
H. K. Willbern .....		126. 45
R. K. Traylor .....		26. 04
H. C. Coates .....		44. 60
C. J. Damstrom .....		118. 32
John Traylor .....		22. 96
Nels Larson .....		131. 25
Mrs. B. F. Ward .....		52. 67
Chas. Peterson .....		185. 24
Edward Wilson .....		155. 76
Gust Swanson .....		233. 52
C. Samuelson .....		54. 24
Olof Markinson .....		22. 00
Victor Damstrom .....		102. 41
N. S. Sodekson .....		200. 00
J. L. Lowrance .....		300. 00
Seth Burn tt .....		40. 40
W. T. Franklin .....		132. 75
<b>Expenditures in Washington:</b>		
<b>Salary—</b>		
1 entomologist, E. A. Schwarz .....	\$1,000. 00	1,000. 00
1 clerk, A. J. Leister .....	600. 00	700. 00
Expenses, miscellaneous: Supplies, stationery, apparatus, typewriter, etc.	772. 57	800. 00
<b>Work in cooperation with Louisiana Crop Pest Commission, \$10,000:</b>		
<b>Salary, entomologists—</b>		
Wilmon Newell .....	600. 00	600. 00
A. W. Buckner .....	600. 00	600. 00
C. W. Flynn .....	600. 00	600. 00
J. B. Garrett .....	600. 00	600. 00
Expenses: Letters of authorization covering traveling and other expenses for above men .....	1,482. 47	3,617. 53
<b>Work in cooperation with Texas Experiment Station:</b>		
Salary, one entomologist, C. E. Sanborn .....	480. 00	480. 00
Expenses .....	510. 00	490. 00
<b>Allotment for joint investigations between the Bureau of Entomology and the Bureau of Plant Industry, \$10,000:</b>		
(The Bureau of Entomology has allotted \$10,000 and the Bureau of Plant Industry \$12,000 for a joint investigation relating to problems more or less in the domain of both bureaus. It includes a study of the effi- ciency of the weevil, resistance of adaptability of the cotton plant, local bionimic factors and bionimic explorations of Central American cotton culture.)		
<b>Salary—</b>		
Argyle McLachlan .....	600. 00	600. 00
C. B. Doyle .....	600. 00	600. 00
G. P. Goll .....	600. 00	600. 00
B. T. Jordon .....	360. 00	360. 00
L. B. Rose .....	360. 00	360. 00
R. M. Meade .....	214. 17	240. 00
Expenses: Letters of authorization covering traveling and other ex- penses for above men .....	1,034. 86	2,465. 14
Rent .....	96. 00	96. 00
<b>Total .....</b>	<b>\$3,347. 57</b>	<b>48,639. 08</b>

**RECAPITULATION.**

<b>Appropriation .....</b>	<b>\$85,000. 00</b>
<b>Expended to December 31, 1906 .....</b>	<b>33,347. 57</b>
<b>Estimated to June 30, 1907 .....</b>	<b>48,639. 08</b>
<b>Balance .....</b>	<b>3,013. 40</b>
<b>Total .....</b>	<b>85,000. 00</b>

The CHAIRMAN. This shows expenditures to December 31, 1906.

Mr. SCOTT. That is what we wanted to look to particularly. I find one item in this statement which you have just presented, showing expenditures up to December 31, 1906, and the liabilities to June 30, 1907—I find one item, "Expenses for traveling, supplies, and

labor incurred by above men, \$10,324.64"—expenses to December 31, 1906; and an estimate of about the same amount to June 30, 1907, the rest of the year. That would make in the neighborhood of \$21,000 altogether. Just what do you mean by "labor incurred?"

Mr. HUNTER. That is a minor item included to make the list complete. Each one of these men has a letter authorizing him to perform travel and to pay such minor charges as are necessitated by his work. For example, a man may be sent out from headquarters to obtain a lot of infested material from some quarter, and it will be necessary for him to employ a Mexican or a negro for a day at a time, as a matter of assistance to him in gathering that material. These letters of authorization include that, and that is the reason for its inclusion here. It is sometimes necessary for our men to pay freight or express charges on supplies sent to them when away from headquarters.

Mr. SCOTT. I see another item here, contracts with field operators, and then follows quite a number of parties, amounting to \$4,000 or \$5,000. What are those contracts?

Mr. HUNTER. I think there are 17 in there, which all cover that large scale destruction experiment of which I spoke the other day. These are the farmers in Calhoun County who have 400 acres of cotton in a strictly isolated section. We have had all the cotton stalks destroyed in the fall in order to get information by the next spring as to the destruction of the weevil under the most favored conditions. The total amount involved in those 17 contracts is about \$1,900.

Mr. SCOTT. That was to compensate these men for the loss of whatever cotton might be destroyed by the early burning of the plants?

Mr. HUNTER. Yes. It was the result of an appraisalment and agreement between our representative and a representative of the planters there.

Mr. SCOTT. And what are the other contracts you refer to?

Mr. HUNTER. The others appear on another page. Those are our regular experimental farms. We enter into a regular contract with the planter, whereby he agrees to prepare the land, plant the seed and care for it exactly in accordance with our directions. In fact, it gives us practically complete charge of as large areas of cotton lands as we want to undertake. We found that a much better policy than to go to the trouble and expense of renting the land outright. We have complete and absolute control under these contracts, whereas, if we should go to work and rent this land and hire the teams and labor necessary to work it, it would not only cost us more than under the contracts, but would place the work on an artificial basis and would not have the effect upon the people that the work has now, when done in the places of those planters, right alongside that of their regular work.

Mr. SCOTT. What do these men do in return for the amount of money you pay them?

Mr. HUNTER. They follow our explicit directions from the beginning of the preceding fall as to the destruction of the plants to similar treatment in the fall of the season covered; as to arranging the plats for our experimental purposes, cultivating them whenever we give them directions to cultivate, keeping track of the different

pickings on the plats, at the end of the season giving us full reports of the amount produced and then destroying the stalks that are left standing.

Mr. SCOTT. What you pay them for is the additional bookkeeping and accounting that they make?

Mr. HUNTER. Yes; and the information that we get from the fact that they follow our directions.

Mr. HOWARD. And for the loss of cotton, too.

The CHAIRMAN. Is not that more particularly under the Bureau of Plant Industry—that culture that you mentioned?

Mr. HUNTER. No, sir. This is clearly differentiated from the work of the Bureau of Plant Industry. This is strictly weevil work.

The CHAIRMAN. I know; but you say you give them directions in regard to the cultural methods, and so forth.

Mr. HUNTER. I was speaking of what the planters have to do under their contracts. That is aside from what we do.

Mr. SCOTT. Following up the chairman's line of thought, is it not true that you prescribe cultural conditions and cultural methods for these men? Do you not tell them how far apart to plant the cotton and how thick to put it in a row?

Mr. HUNTER. Yes.

Mr. SCOTT. Do you do it with the advice of the Plant Industry Bureau, or are those your own ideas?

Mr. HUNTER. Those are our own ideas, based upon our knowledge of the weevil.

Mr. SCOTT. Do you make a contract whereby you guarantee the planter a certain crop if he will follow your methods?

Mr. HUNTER. Yes. These general contracts are made on that basis.

Mr. SCOTT. Are you generally required to pay a balance to the planters on these contracts?

Mr. HUNTER. Usually not. For the year 1906, for instance, we had total obligations of that kind amounting to \$8,900. As a matter of fact, we had to pay only on two or three of them. The total amount was \$2,200, instead of the maximum liabilities.

We get at those contracts in this way: Wherever in a particular region we want to contract a work of any kind, we interview a number of representative planters and tell them in a general way what the nature of the work is, and receive from them proposals as to what amount of cotton guaranteed they will undertake that work for. From the standpoint of the planter, when he is undertaking work of that kind, what he desires to know is how he is going to come out with the crop. We find it most feasible in cases of that kind to arrange a contract on the basis of a certain crop guaranty to the planter. That amount is obtained by securing competitive bids from the different planters in the region where the place is located.

Mr. LEVER. What is your average yield per acre under this competitive system?

Mr. HUNTER. The extremes are 300 pounds of seed cotton per acre up to 1,000 pounds. I do not think we have ever gone beyond that. This guaranty is in pounds of seed cotton. Larger guaranties are only made in the cases of very productive river-bottom plantations. I suppose the average, Mr. Lever, would be 500 or 600 pounds of seed cotton per acre.

Mr. LEVER. That would be about 80 or 100 pounds of lint cotton?

Mr. HUNTER. Yes; much less than the average production of cotton in the United States.

The CHAIRMAN. Now, under your salary list outside of the city of Washington there is a stated corps, there, of salaries like yourself, and Hinds, and Morrill, and Bishopp. They are all annual salaries.

Mr. HUNTER. Yes.

The CHAIRMAN. Crawford is an annual?

Mr. HUNTER. Yes.

The CHAIRMAN. Goes?

Mr. HUNTER. He has left the service.

The CHAIRMAN. Hooker is annual, employed all the year?

Mr. HUNTER. Yes.

The CHAIRMAN. Pierce, \$1,400, and Yothers and Morgan are all employed by the year, are they not?

Mr. HUNTER. Yes, sir. They are all entomologists.

The CHAIRMAN. Do you work all the year round?

Mr. HUNTER. Yes.

The CHAIRMAN. What do you do now, at this season?

Mr. HUNTER. We have notes down there from our experimental stations awaiting publication which have to be put into shape.

The CHAIRMAN. Who have you in the field now at the present time?

Mr. HUNTER. Those men—W. W. Yothers, J. D. Mitchell, R. A. Cushman, and F. C. Pratt—are all in the field at this time. There are unusual winter conditions in Texas now. The weather is abnormally mild. In fact, the reports are that the season is as far advanced in Texas at this date as it is normally in the month of March. There is volunteer cotton scattered all over Texas on account of this mild weather, and the weevils are in many cases coming out from their hibernating places and feeding on this volunteer cotton. The investigations and observations of these, besides adding to our stock of knowledge, will give us some knowledge in the future as to how many will go through the winter successfully.

Mr. LEVER. You have about 35 men, and those are working in Texas now?

Mr. HUNTER. They are listed here; some temporary employees.

Mr. LEVER. What State are you from, Mr. Hunter?

Mr. HUNTER. Iowa.

Mr. LEVER. Where is Mr. Hinds from?

Mr. HUNTER. Massachusetts.

Mr. LEVER. Where is Mr. Morrill from?

Mr. HUNTER. Massachusetts.

Mr. LEVER. And Mr. Bishopp?

Mr. HUNTER. Colorado.

Mr. LEVER. Mr. Crawford?

Mr. HUNTER. Nebraska.

Mr. LEVER. Mr. Hooker?

Mr. HUNTER. Massachusetts.

Mr. LEVER. Mr. Morgan?

Mr. HUNTER. New York.

Mr. LEVER. Mr. Pierce?

Mr. HUNTER. Nebraska.

Mr. LEVER. Did you ever have any practical experience in cotton growing?

Mr. HUNTER. Only since I have been engaged in this work—since March, 1901.

The CHAIRMAN. Has the Bureau been making these investigations of the cotton boll weevil since 1901? Is that their first appropriation?

Mr. HUNTER. That is the first special appropriation. A small amount of work had been done out of the general funds of the Bureau of Entomology a few years before that.

The CHAIRMAN. Therefore the study of the life history of boll weevils has been going on under the Bureau for five years?

Mr. HUNTER. For four years, more accurately.

Mr. LEVER. Now, then, returning to my series of questions, Doctor, the larger part of your special force of men in the field in Texas have had no practical experience in this cotton growing?

Mr. HUNTER. No, sir; they are entomologists.

Mr. LEVER. Entomologists pure and simple?

Mr. HUNTER. Primarily entomologists.

Mr. LEVER. Do they, in addition to their entomological advice, give advice as to cultural methods?

Mr. HUNTER. No, sir.

Mr. SCOTT. Let us have that understood. In answer to my question a moment ago, I understood Mr. Hunter to say that the entomologists did tell the planters how far apart to make their rows and how thick to put the plants in.

Mr. HUNTER. I understood the question was directed to these contract farms.

Mr. SCOTT. It was; but Mr. Lever's question covers the contract farms also.

Mr. HUNTER. So far as the contract farms are concerned, I would answer affirmatively; but so far as the other work is concerned, I would answer negatively.

The CHAIRMAN. In other words, you have demonstration farms in which you teach the cultural methods in addition to doing entomological work?

Mr. HUNTER. These farms are really an extension of our laboratory work in the field. In these fields we study the weevil.

Mr. LEVER. If the chairman will permit me, I suggest that Doctor Hunter tell us exactly what these field agents of his do down there with reference to this work. I think that will bring it out.

Mr. HUNTER. For instance, we have our laboratory and headquarters at Dallas. There are laboratory experiments going on relating to the life history of the weevil and the remedies proposed from time to time, and that takes the time of several entomologists at the headquarters.

In addition to that, this experimental field work of ours is divided into routes. One entomologist travels from one to the other, and covers from about two to four or five of them. At each one of these places, early in the season, he determines the time when the weevils appear, and makes exact records of all weevil conditions in the fields throughout the season. We have complete reports of the weevil conditions made by these men. That takes some of the other men, and in addition to that, the time of several men is required at certain times in the year to study the migration and determine the extent of the dispersion of the weevil. Besides that, there are miscellane-

ous matters coming up from time to time. We have a number of special investigations under way. For instance, in east Texas this spring there was an astounding number of weevils found in the fields. The condition was so peculiar there that we felt warranted in studying the matter very carefully, because whatever we might find out in that region would have a definite bearing on what the weevil was going to do in other regions. That was the first opportunity we had to study the life history of the weevil under conditions approximating those that it will encounter over in the Mississippi Valley.

Mr. LEVER. Thank you. I think we understand that.

Now, then, that covers your work covering the life history of the weevil?

Mr. HUNTER. Yes, sir.

Mr. LEVER. Now, then, will you tell the committee just what you do with these contract farms that we have here?

Mr. HUNTER. Yes. We select these farms that I have described in the regions where the conditions are peculiar. There is the greatest diversity in different parts of the area infested by the weevil, as, for example, this peculiar region over in east Texas. There is another peculiar region in west Texas, in the high and dry climate. There is still another set of peculiar conditions along the coast of the South, where volunteer cotton occurs regularly. We go into these special regions where we find from general observation that there are peculiar local aspects of the weevil problem. The cotton is planted by the farmer, according to the system that we have found in other places to be of best advantage, and the accurate observations on the weevil that are carried on during the season show exactly what the weak points in the method of procedure against the weevil in that particular locality are.

Mr. LEVER. But you do not in any way go into the cultural method at all in these contract farms?

Mr. HUNTER. I think there is a misunderstanding about the term "cultural." Unfortunately, this system of mitigating the damage by the weevil has become known as the cultural system. It starts with the destruction of the stalks in the fall and is only cultural in this: That it is carried on by the farmer with the same implements and along the same lines in most cases that he would follow in cultivating cotton ordinarily, aside from the weevil. I suppose by cultural methods you refer to merely the actual cultivation of the soil, the plowing, subsoiling, seeding, and so forth?

Mr. LEVER. Yes. Now, Doctor, can you tell us just what part of this appropriation you expend in studying the life history of the weevil and what part of it you spend on these experimental farms?

Mr. HUNTER. It would be a difficult matter to do that because these contract farms are virtually a part of the life history of the weevil.

Mr. LEVER. I mean approximate it.

Mr. HUNTER. The total amount, in a rough way, could be arrived at by adding certain items in this list of contracts. I suppose that \$5,000 or \$7,000 would cover the item.

Mr. LEVER. How much, Doctor?

Mr. HUNTER. From \$5,000 to \$7,000.

Mr. LEVER. In the study of the life history?

Mr. HUNTER. No; in the contract farms—in that part of the laboratory work expended in the field.

Mr. LEVER. I presume, Doctor, that your reason for having so many of these men who are not acquainted with the practical side of cotton growing doing this work is due to the fact that it is rather hard to get entomologists in that section of the country?

Mr. HUNTER. Yes. Doctor Howard has ransacked the South for entomologists. We were forced to the procedure of getting fully trained entomologists like those produced at Cornell University and Amherst, where one of the finest entomological courses in this country exists. We started out and got entomologists primarily, and we found that not one of those men remains in the South more than a short time until he becomes almost a cotton planter. And I have no doubt that any one of these men who appear as entomologists could go out and make a success as a cotton planter.

Mr. HOWARD. Last year one of the most prominent growers in the State of Texas told me confidentially that he would rather take Mr. Hunter's advice on any case relating to cotton culture than that of any cotton planter in Texas.

Mr. LEVER. That was very complimentary to Doctor Hunter, and I am sure it is deserved.

Mr. SCOTT. I should like to inquire, Doctor, what specific fact or facts your study of the boll weevil, from the entomological standpoint during the past five years, has developed that are of practical advantage to the planter.

Mr. HUNTER. The first that stands out conspicuously is the advantage to be gained by getting rid of immense numbers of weevils in the winter.

Mr. SCOTT. When was that advantage developed? How long after you began the study of the insect?

Mr. HUNTER. It was suggested at the very beginning, but additional work since that time has shown fully exactly where these weevils go for hibernation, and consequently it places the knowledge within the reach of the farmer as to where he may reach them, by cleaning up the fields and destroying the stalks in the same way.

Another specific point that has been brought out recently is the possible use of parasites in the control of the weevil. That has only developed in a year's time. Over a year ago the appearances were that the parasite would never be of any practical utility in fighting the weevil. There has been a change in the conditions within a year, and the appearance is now, based upon the actual data, that these parasites can be disseminated and used in the destruction of the weevil.

Mr. SCOTT. Can you give us the amount of money expended in the development of that fact?

Mr. HUNTER. It is difficult to do so, because the energies of a number of men contributed to that. Men who have regular laboratory work and regular field work have at times been diverted from their work and assigned to this parasite work. We have assigned as many as possible to the work. It is impossible to give you an accurate figure as to the amount of money spent in ascertaining facts about parasites.

Mr. SCOTT. In a rough way, would you say 25 per cent would cover the cost of that phase of the work?

Mr. HUNTER. I should say it would; 25 per cent.



Mr. SCOTT. Can you give us an idea of the practical results that have been obtained by the expenditure of the other 75 per cent?

Mr. HUNTER. Oh, I misunderstood your question about the 25 per cent. What I had in mind was out of this 1907 appropriation used up to date. That does not refer, of course, to the expenditures made in other fiscal years.

Mr. SCOTT. I refer only to the expenditures of the past year.

The CHAIRMAN. Of the year ending June 30, 1906?

Mr. SCOTT. I refer only to the expenditures of the current fiscal year.

The CHAIRMAN. The current fiscal year commenced July 1, 1906.

Mr. SCOTT. And will end June 30, 1907.

The CHAIRMAN. Yes. Only six months of that fiscal year are gone.

Mr. SCOTT. Yes. I understood the doctor to say that this parasite information had practically been developed since that.

Mr. HUNTER. Yes. Then the answer is all right. Approximately 25 per cent may have been used in that. That leaves such matters as the investigation of remedies and other work which yield only negative and not positive results.

Mr. SCOTT. You find out, simply, that certain theories are not true?

Mr. HUNTER. Yes; that certain suggested remedies are not effective. Of course, from our standpoint that is negative, but from the standpoint of the farmer, who may be impelled by some rumor or advertisement to try one of these remedies, it is a very positive kind of information.

Mr. LEVER. But have not those Texas farmers been fooled in that way so long now that they do not bite so easily?

Mr. HUNTER. There is a new crop produced every year.

Mr. LEVER. A new crop of bait?

Mr. HUNTER. As the weevil gets into other regions it encounters people who have not heard of these things; and besides that, new ones with every appearance of plausibility are proposed by ingenious persons all through the season.

Mr. SCOTT. As a result, then, of your work since the 1st of last July, about the only positive advance you have made has been on the line of the parasitical study?

Mr. HUNTER. In addition to that we have mapped the area infested by the weevil, which is a matter which is of interest to the people throughout the South, and elsewhere, for that matter; and in addition to that, we have carried on this field laboratory and experimental work another season. That work is like any other kind of field work that is subjected to a variety of climatic conditions in the different seasons; it gains value as it is continued through a series of years, like any other field work.

Mr. SCOTT. Now, going back over the whole period of your investigation of the weevil, what practical results have you had from what you call your field laboratory work, in addition to having taught the farmers where the weevil hibernates and showing them the best methods of destroying large numbers of them in that way?

Mr. HUNTER. The practical result has been in what is known throughout the infested area as the cultural system of controlling the weevil. The result of all this work was to point out exactly what expedients could be resorted to and what measures could be taken by the farmers, and that mass or assemblage of knowledge concerning

expedients is now known commonly as the cultural system of controlling the weevil, or of mitigating the damage inflicted by the weevil. The system has been taken up by commercial bodies, by farmers' institutes, and by the very efficient work of Doctor Knapp, and has been demonstrated. The basis of this demonstration work is this field laboratory work, which involves careful investigation of the life history of the weevil.

Mr. SCOTT. Do you expect to carry on the laboratory work for the next season?

Mr. HUNTER. We think it could be done with advantage on account of the new regions which the weevil is entering or about to enter, where it will react and give the problem an entirely different aspect.

Mr. SCOTT. Can you give us an idea of what you mean by saying that "it will give the problem an entirely different aspect?"

Mr. HUNTER. Yes. In Texas a large portion of the success that has attended the efforts of the farmers to control the weevil is due to the fact that there is more or less of a period of dryness in the spring. When the infested squares begin to drop to the ground they are then in very many cases burned up, so to speak—the square is dried so that the weevil inside dies. That is due to local conditions in Texas. In Louisiana the rainfall, instead of averaging 25 or 30 inches, runs up to 50 or 60 inches. That rainfall is going to react on the weevil, and the result will be that the whole system will not naturally have as much efficacy there as it had in Texas, where it was assisted by the climatic conditions. Is that clear?

Mr. SCOTT. Yes; it is clear, so far as it gets. I do not know whether you can go further. If you care to venture it, I would like to ask what you hope to develop that will show as effective results in this very humid country as you have obtained in the dry country.

Mr. HUNTER. That is reaching into the uncertain future, but I will say, however, that the principal hope is in the utilization of these parasites of the weevil. In Texas the same conditions that have checked the weevil have also checked the parasites. With the removal in Louisiana of the conditions that checked the weevil and the parasite the parasites may accomplish a great deal more than they did in Texas.

Mr. SCOTT. I see that in cooperation with the Texas experiment station you have appropriated a comparatively small amount, about \$1,200 or \$1,500, while in Louisiana you have appropriated \$10,000 to cooperate with their State authorities.

Mr. HUNTER. Yes, sir. That is in pursuance of our general policy to carry on work where new conditions are arising. The weevil is about two-thirds the way across Louisiana, and until very recently there was a possibility that it might be checked at some point in that State. The conditions are new over there, and we can frequently do away with work that we have been conducting in Texas for some years and replace it by work in new regions over there, where the conditions are different.

Mr. SCOTT. Do you know how much Louisiana appropriated for this work?

Mr. HUNTER. The special session of the legislature about two or three years ago appropriated \$50,000. The last legislature, in session last summer, did not increase that appropriation, although by the

terms of the first appropriation it continues available until expended. That leaves them now about \$25,000 for the biennial period which began last September.

Mr. SCOTT. Have our experiment stations been doing any work along this entomological line?

Mr. HUNTER. This work has been on entomological lines. All the work we do in Louisiana is through the crop pest commission there, which is a part of the experiment station.

Mr. SCOTT. Has any of the work done by any of the entomologists working under the authority of either Texas or Louisiana developed anything?

Mr. HUNTER. Well, it has already added to the general sum of knowledge that we have now. For instance, the work in Louisiana has added a great deal to what we know about parasites. The prediction that I made a few moments ago as to what parasites might do in Louisiana is based upon work which comes under that category—Louisiana cooperation.

Mr. SCOTT. Do you think the interests of this investigation would suffer seriously—I am taking in now the strictly scientific side—if the work of the Federal Government were withdrawn entirely and the State entomologists left to work out their own problem?

Mr. HUNTER. I think it would suffer very decidedly. There would certainly be a hiatus of several years before the States would make any provision whatever. With their biennial legislatures and other arrangements, a considerable period must elapse before they will do anything to amount to anything.

Mr. SCOTT. Have they not continuing appropriations in those two States?

Mr. HUNTER. In Texas they have not. They have a department of entomology in the agricultural and mechanical college which has only about \$1,200 or \$1,500 for annual expenditures.

The CHAIRMAN. What are the experimental farms in those two States doing, if anything, along this line, in the way of cultural methods? I mean those of Texas and Louisiana.

Mr. HUNTER. They are doing nothing, so far as I know. In some cases they may be doing some incidental work like testing varieties of cotton.

The CHAIRMAN. That represents the expenditures for the fiscal year ending June 30, 1906 [indicating typewritten statement]?

Mr. HUNTER. Yes, sir.

*Salaries, traveling expenses, and field and station expenses, appropriation for boll weevil investigations, entomology, 1906.*

Name.	Salary.	Traveling expenses.	Station expenses.	Total.
OUTSIDE OF WASHINGTON.				
Hunter, W. D .....	\$2,750.00	\$653.00	\$557.86	\$3,961.46
Hinds, W. E .....	1,800.00	96 35		1,896.35
Morrill, A. W .....	1,600.00	587.45		2,187.45
Bishopp, F. C .....	1,400.00	298.18	94.26	1,792.44
Crawford, J. C., jr .....	1,400.00	373.05		1,773.05
Goes, Springer .....	816.66	109.37		926.03
Hooker, W. A .....	1,400.00	330 45		1,730.45
Morgan, A. C .....	1,400.00	481.00		1,881.00
Pierce, W. D .....	1,400.00	117.80		1,517.80
Yothers, W. W .....	1,400.00	141.25		1,541.25
Flynn, C. W .....	400.00	436.00		836.00
Garrett, J. B .....	400.00	274.60		674.60

*Salaries, traveling expenses, and field and station expenses, appropriation for boll weevil investigations, entomology, 1906—Continued.*

Name.	Salary.	Traveling expenses.	Station expenses.	Total.
OUTSIDE OF WASHINGTON—continued.				
Goll, G. P.	\$400.00	\$297.85		\$697.85
Hardy, E. S.	503.33	487.89		991.22
Howell, R. C.	700.00	121.35		821.35
McLachlan, Argyle	1,200.00	557.51	\$282.25	2,040.76
Martin, W. O.	800.00	230.16		880.16
Mitchell, J. D.	443.33	313.05		756.38
Morgan, H. A.	100.00	144.65		244.65
Newell, Wilmon	1,000.00	495.95		1,495.95
Gilson, W. H.	500.00	262.52		762.52
Bristol, B. R.	6.67			6.07
Jones, C. R.	1,100.00	866.32		1,466.32
Doyle, C. B.	1,067.50			1,067.50
Pratt, F. C.	816.67	865.15		1,181.82
Sinborn, C. E.	1,020.00	209.90	21.60	1,251.50
Leister, A. J.	1,200.00	101.45		1,301.45
Bless, Edward	297.50			297.50
Harris, R. B.	15.00			15.00
Ewing, W. G.	100.00			100.00
Rose, L. B.	330.00	76.50		406.50
Jordan, B. T.	600.00	100.00		700.00
Pettit, A. K.	140.00			140.00
Meade, R. M.	291.66	10.95		302.61
Billingsley, T. E.	155.00	224.45		879.45
Schwarz, E. A. (in Washington)	833.34	302.22		1,185.56

Total amount paid for salaries outside of Washington, \$28,773.32.

Total amount paid for salaries in Washington, \$833.34.

MISCELLANEOUS ITEMS.

Name.	Amount.	Name.	Amount.
Stationery:		Fuel: Hyattsville Grain and Coal Co.	\$81.50
Ballantyne, R. C.	\$3.50		
Library Bureau	25.50	Express:	
Monarch Typewriter Co.	80.00	Adams Express Co.	38.01
Swayze, W. L.	70.20	United States Express Co.	12.00
Texas Paper Co.	6.25	Total	50.91
U. S. Envelope Co.	61.19		
Total	246.64	Telegraph:	
Miscellaneous supplies and services,		Postal Telegraph-Cable Co.	.71
books, equipment, apparatus, ma-		Western Union Telegraph Co.	33.67
chinery, and laboratory materials:		Total	34.38
American Entomological Co.	109.75		
Bausch & Lomb Optical Co.	97.27	Telephone: Chesapeake and Potomac	
Burrells Press Clipping Bureau	60.00	Telephone Co.	.20
Carl, Frederick	7.00		
Espey, John B.	13.90	Rent:	
Franklin, W. T.	129.50	McCann, J. F. (house for labora-	
Friez, Julien P.	77.81	tory, 307 Commerce street, Vic-	
Gardner, B. H.	355.25	toria, Tex.)	192.00
Goulds Manufacturing Co.	25.50	Trust Co. of Dallas (house for lab-	
Johnson, Jefferson	361.05	oratory, 131 Reiger avenue, Dal-	
Lincoln, Fred S.	16.00	las, Tex.)	70.00
Lindsay Rubber Manufacturing Co.	2.80	Total	262.00
Lutz & Co.	6.00		
Nichols, Joseph F.	109.07	Contracts for growing of cotton for in-	
Meloy, J. B.	4.25	vestigations concerning cotton boll	
Porter, J. W.	500.00	weevil:	
Reed, S. G.	317.12	Gardner, B. H.	355.25
Remington Typewriter Co.	117.50	Franklin, W. T.	129.50
Stribling, Geo. F.	500.00	Johnson, Jefferson	361.05
Tappan, M. A.	5.00	Nichols, J. F.	109.07
Underwood Typewriter Co.	.75	Porter, J. W.	500.00
Walford, D. M.	5.00	Reed, S. G.	317.12
Whitall, Tatum Co.	27.85	Stribling, G. F.	500.00
Woodward & Lothrop	23.25	Yturri, Henry	22.81
Yturri, Henry	177.19		
Total	3,045.81		
Furniture:			
Moses, W. B. & Sons.	10.78		
Woodward & Lothrop	8.70		
Total	19.48		

*Salaries, traveling expenses, and field and station expenses, appropriation for boll weevil investigations, entomology, 1906—Continued.*

## RECAPITULATION.

Work in Texas against the cotton-boll weevil and the cotton-boll worm .....	\$46,349.28
Work in Louisiana against the cotton-boll weevil in cooperation with State .....	4,153.35
Investigation and importation of Guatemalan ant. ....	8,540.73
Balance unexpended .....	25,400.71
	<hr/> 84,444.00

## EXPLANATION.

The unexpended balance referred to above includes a reserve of \$7,000 held for emergencies, such as the stamping out of isolated weevil colonies. Moreover, a portion of the remaining balance was set aside early in the season to cover possible obligations under contracts. Agreements aggregating possible obligations amounting to \$9,815 were entered into, but the actual payments were only \$2,449.18. These two items, covering money set aside for emergencies and to enable the Bureau to enter into advantageous contracts, and in that sense used, reduce the unexpended balance above mentioned to \$11,534.89.

The CHAIRMAN. These people on this salary list receive an annual salary? For example, W. D. Hunter, \$2,750. That is your annual salary?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. What is the station expenditures charged to there, \$557.86?

Mr. HUNTER. That is for drayage, express, telegraph and telephone charges, and such labor as was necessarily incurred.

The CHAIRMAN. There is another item in this list calling for express charges. Those other express charges are ones you had incurred for the service individually?

Mr. HUNTER. Yes.

The CHAIRMAN. Is Mr. Bishop an entomologist?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. He has \$94.26 here for expenses.

Mr. HUNTER. In his case it was largely labor necessary in the field.

The CHAIRMAN. Money that he paid out?

Mr. HUNTER. Yes. He would hire a negro or a Mexican by the day.

The CHAIRMAN. Is that list on page 1 all composed of entomologists?

Mr. HUNTER. Leister and Blesi and Harris and Ewing are clerks. One of them is employed here at Washington. Blesi is employed at my office at Dallas. Harris was a supernumerary man there for a short time. Ewing was employed there for a short time, but has now left the service.

The CHAIRMAN. Those are clerks, those three men?

Mr. HUNTER. Yes. Pettit is a janitor or laborer.

The CHAIRMAN. What was he employed at \$140 for—as laborer or janitor?

Mr. HUNTER. We pay him \$35 a month. He began some time after the beginning of the fiscal year, so that this does not represent the annual rate.

The CHAIRMAN. These small items of Bristol, Pratt, Mitchell, and so forth—were those temporary appointments, laborers, clerks, or what? Or are they all entomologists?

Mr. HUNTER. Are those on the first page?

The CHAIRMAN. Yes; those are on the first page—Mitchell,

\$443.33; Hardy, \$503.33; Flynn, \$400; Garrett, \$400; also Goll. Those last three are \$400 apiece.

Mr. HUNTER. Mitchell is an employee who began his service with us on the 1st of January or on the 1st of February.

The CHAIRMAN. I notice these men have all got quite large traveling expenses attached to their accounts.

Mr. HUNTER. They are men on the road—traveling from place to place all the time.

The CHAIRMAN. What are they? Entomologists?

Mr. HUNTER. Mr. Mitchell is an exceptional case. I am glad his name is mentioned. Aside from the fact that we have entomologists from various universities in the North, we have in Mr. Mitchell a native Texan, who is a natural-born naturalist, something like Mr. John Burroughs, and besides being a naturalist, Mr. Mitchell is a cotton planter. After considerable negotiation with him he agreed to enter our employ last year. Now he is one of the most valuable men we have. Mr. Mitchell is known at the National Museum and in scientific circles throughout the country.

The CHAIRMAN. I see Argyle McLachlan is charged with \$557.51 traveling expenses, and yourself, at the head of the Bureau, are charged with only \$653. Morrill has \$587.45, McLachlan \$557.51, and Newell \$495.95 in the year. Those are pretty good amounts for traveling. Where is that traveling done? Do they travel as much as you do?

Mr. HUNTER. I think in the case of Mr. McLachlan one or two trips from this country to Guatemala are included. That has brought up the expenses. Part of that appears in the \$283.25 of station expenses. That item of station expenses includes reimbursement to the party named of money advanced by him for other purposes than strictly traveling expenses. It includes labor and the purchase of supplies in the field and the employment of guides, and so on.

The CHAIRMAN. Over on page 3 of this statement I see an item on the investigation and importation of the Guatemalan ant, \$8,540.73. Is that in excess of that, or is it included in that?

Mr. HUNTER. It is included in that.

The CHAIRMAN. Where does Mr. A. W. Morrill travel?

Mr. HUNTER. He is my principal field assistant. Doctor Hinds is the principal laboratory assistant, and Mr. Morrill has a somewhat similar relation to field work. He is a man that travels from place to place and inspects and keeps correlated the data accumulated on the different experiment farms.

The CHAIRMAN. Just go down that list and name the actual entomologists, commencing with yourself.

Mr. HUNTER. Hinds, Morrill, Bishopp, Crawford, Goes, Hooker, Morgan, Pierce, Yothers, Flynn, Garrett, Goll, Hardy, Howell—both those two men, Goll and Hardy, have left the service.

The CHAIRMAN. How about McLachlan?

Mr. HUNTER. McLachlan, Martin, and Mitchell are entomologists. The next, Morgan, was only employed a short period.

The CHAIRMAN. Then the next is Newell. Is he an entomologist?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. What are his traveling expenses—\$495.95 for traveling expenses?

Mr. HUNTER. Yes. Mr. Newell is the State entomologist of Louisiana and the secretary of the Crop Pest Commission, the organization under the special weevil appropriation over there several years ago. He travels about in Louisiana in this cooperative work a great deal as my man Merrill travels around in—

The CHAIRMAN. Does Newell travel as he pleases, or does he wait until he gets orders from you? Does he undertake journeys without authorization from you?

Mr. HUNTER. Not at all.

The CHAIRMAN. Is that in excess of what the State gives him?

Mr. HUNTER. I believe the State gives him the same amount.

The CHAIRMAN. Does the State pay any amount of his traveling expenses, too?

Mr. HUNTER. I think so.

The CHAIRMAN. Would \$495.95 represent about half his traveling expenses?

Mr. HUNTER. I think very close to it.

The CHAIRMAN. Go on.

Mr. HUNTER. The next is Gilson—

The CHAIRMAN. Is he an entomologist?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Bristol—is he an entomologist?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. How did you get in \$6.67 for him?

Mr. HUNTER. He was employed and transferred in the course of a couple of days. The next, Jones, is an entomologist. Doyle is an employee of the Bureau of Plant Industry, and was detailed to the work. He is a special assistant to Mr. O. F. Cook, who had and has charge of that work. Pratt is an entomologist. Sanborn is an entomologist also. Leister is a clerk. Blesi is a clerk. Harris is a clerk. Ewing is a clerk. Rose and Jordan are both men like Mr. Doyle—associated with Mr. Cook in joint work between the two Bureaus. Pettit is a laborer and janitor, and Meade and Billingsley are men like Rose and Jordan—employed jointly by the two Bureaus.

The CHAIRMAN. You have 26 entomologists at work down there, according to that. The total amount paid for salaries outside of Washington is \$28,773.32, and the amount of salaries in Washington is \$1,135.56.

Now, is that all stationery on the top of page 2? I see there is no heading there.

Mr. HUNTER. Yes. The heading was omitted. That is stationery.

The CHAIRMAN. Now, miscellaneous supplies and services, books, equipment, apparatus, machinery, and laboratory materials. What did you buy from the American Entomological Company?

Mr. HUNTER. We buy glasses, vials, collecting apparatus, and cases; insect cases, such as we use for exhibition purposes at the laboratory.

Mr. SCOTT. What are you reading from?

The CHAIRMAN. That is from the expenditures of the year ending June 30, 1906. Now, what did you buy from the Bausch & Lomb Optical Company?

Mr. HUNTER. Optical and microscopic supplies, and photographic supplies.

The CHAIRMAN. The next item is Burrell's Press Clipping Bureau, \$60. What did you get?

Mr. HUNTER. We got from that institution the clippings that appear regarding the boll weevil in the newspapers of the different parts of the country, in order to keep posted as to what the newspapers are saying.

The CHAIRMAN. The next is Frederick Carl, \$7.

Mr. HUNTER. Just now that item has slipped my memory.

The CHAIRMAN. John B. Espey, \$13.90.

Mr. HUNTER. I do not believe I remember that one.

The CHAIRMAN. The next is W. T. Franklin, \$129.50.

Mr. HUNTER. That was contract for experimental farm work in Louisiana.

The CHAIRMAN. That is not on your list of experimental farms over the page, is it? Oh, yes; I see it is; W. T. Franklin, \$129.50. You mean it was paid out under that?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. The next item is Julien P. Freiz, \$77.31.

Mr. HUNTER. He is a manufacturer of meteorological apparatus in Baltimore. The \$77 was for a hydrograph, including express charges to Texas. The hydrograph is an instrument for recording automatically the amount of humidity in the atmosphere. In studying the relation between atmospheric humidity and the development of the weevil it was necessary, of course, to have some accurate measurement of the atmospheric humidity to make our results accurate.

The CHAIRMAN. The next is B. H. Gardner, \$355.25.

Mr. HUNTER. That relates to experimental farm operations at Palestine, Tex.

The CHAIRMAN. That appears over in the contracts again?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Now the next is Goulds Manufacturing Company, \$23.50.

Mr. HUNTER. That covers the purchase of a spraying apparatus, to be used in applying poisons.

The CHAIRMAN. Have you found anything in spraying?

Mr. HUNTER. All our results have been negative.

The CHAIRMAN. The theory was advanced here by somebody that at a certain time, when the cotton was just coming out of the ground, the spraying was effective; just when the leaves first appear they feed upon the outer edge of the leaf.

Mr. HUNTER. By that system a certain number of weevils can be destroyed. The trouble is that the total number destroyed at that time is so small a proportion of the total number coming from hibernation, that it is of no practical value.

The CHAIRMAN. The next is Fred S. Lincoln, \$16. Do you remember that item?

Mr. HUNTER. That is an item incurred here in Washington, for just what I do not know, probably stationery or supplies.

The CHAIRMAN. Lutz & Co., \$6, and Joseph F. Nichols, \$109.07.

Mr. HUNTER. That is an experimental farm item.

The CHAIRMAN. The next is J. B. Meloy, \$4.25, and the one after that is J. W. Porter, \$500. That is experimental farm?

Mr. HUNTER. Yes, sir.



The CHAIRMAN. The next is Remington Typewriter Company, \$117.50, and then George F. Stribling, \$500. These are experimental farm expenses?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Then below come the items of D. M. Walford and Whitall, Tatum Company.

Mr. HUNTER. That is for glassware and test tubes.

The CHAIRMAN. The next is Woodward & Lothrop, \$23.25, and after that Henry Yturri, \$177.19.

Mr. HUNTER. I can not tell just what that is. The first is a small item. The next, I think, was an experimental farm at San Antonio.

The CHAIRMAN. Here is an item for desks or furniture, \$19.48. Were the desks sent down to Texas?

Mr. HUNTER. Yes. The purchase was necessary because some of our men came in from the field, and the Bureau of Entomology, like the rest of the Departments, was very much overcrowded. It was necessary to get these tables and put them in a room down there.

The CHAIRMAN. The next is fuel; Hyattsville Grain and Coal Company, \$81.50. What is that—your proportion of the heating?

Mr. HOWARD. That is coal purchased for Cook's greenhouse.

Mr. HUNTER. Yes; in Cook's greenhouse, over here in Maryland, where he was caring for colonies of Guatemalan ants.

Mr. SCOTT. Do you say it took \$81 worth of fuel to keep the ants alive?

Mr. HUNTER. It enabled him to avoid the expense of going down to Guatemala on another trip for more ants. On account of the quarantine and one thing and another this importation of ants arrived in this country so late that it was impracticable to put them out in the South.

Mr. SCOTT. Were there no experimental grounds at the Arlington station or at the greenhouse here where they could be kept?

The CHAIRMAN. What amount of room do they require? What floor space?

Mr. GALLOWAY. This greenhouse is used by Mr. Cook for other purposes, and also for the handling of certain of his Guatemalan ants. The matter of having these ants and other things there together on the Department's grounds was considered carefully at the time, and it was decided, in view of the uncertain knowledge existing with reference to the way the boll-weevil insects were disseminated and also as to the way the boll weevils themselves might be disseminated, and the fact that we were sending out our seed constantly and having it stored in certain places, that it would be unwise to have these ants and weevils in close contact with our grounds; so he put up this isolated station in Maryland and carried on the work there.

Mr. SCOTT. So that you were using that greenhouse for other purposes than the storage of the ants?

Mr. GALLOWAY. Yes.

The CHAIRMAN. Why weren't they preserved in a warmer climate? Suppose they had been preserved in Texas or Louisiana?

Mr. HUNTER. They required careful watching and study. The life history of the ants was unknown, and it was desired to have them located where Mr. Cook could study them in connection with his other duties.

The CHAIRMAN. Were all these 26 entomologists here in Washington during the winter time?

Mr. HUNTER. No, sir. Those men employed in connection with Louisiana and Texas stations and a number of other men were all in the field. There were only five or six of them here.

The CHAIRMAN. There are some other expenses here—express, telegraph, and things which I think the committee understand. For rent, J. F. McCann, \$192, for house for laboratory, 308 Commerce street, Victoria, Tex., and Trust Company, of Dallas, for house for laboratory, 313 Reiger avenue, Dallas, Tex., \$70. What did you have two houses down there for?

Mr. HUNTER. Our headquarters were originally at Victoria, and we had this McCann house when we moved north to Dallas to get near the center of this infested territory. We turned this other house at Victoria over to Mr. Cook for a laboratory in connection with his importation of the ant. It was located down in the southern region, where the conditions were favorable. It was consequently impracticable to move that work to Dallas.

The CHAIRMAN. Now, in your contracts for what you might call your experimental farms—what do you call them technically?

Mr. HUNTER. We call them experimental field work.

The CHAIRMAN. You have seven farms under the appropriations for the year ending June 30, 1906, and the expense amounted to \$2,294.80. Then in your recapitulation you say, "Work in Texas against the cotton-boll weevil and the cotton-boll worm, \$46,349.23; work in Louisiana against the cotton-boll weevil in cooperation with the State, \$4,153.33; investigation and importation of Guatemalan ant, \$8,540.73." That has practically been a failure, has it not?

Mr. HUNTER. Yes, sir; so far as the direct use of the ant is concerned. As a matter of fact, it has been very important as opening up the way to the importation of cotton from Central America, which will undoubtedly be of very great value to this country.

The CHAIRMAN. You do not propose to do any more on that line, do you?

Mr. HUNTER. No, sir.

The CHAIRMAN. That sum of \$25,400.71, the unexpended balance, is free for other use?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. You say the balance unexpended is \$25,400.71, and the explanation is: "The unexpended balance referred to above includes a reserve of \$7,000 held for emergencies, such as the stamping out of isolated weevil colonies. Moreover, a portion of the remaining balance was set aside early in the season to cover possible obligations under contracts. Agreements aggregating possible obligations amounting to \$9,850 were entered into, but the actual payments were only \$2,449.18. These two items, covering money set aside for emergencies and to enable the Bureau to enter into advantageous contracts, and in that sense used, reduce the unexpended balance above mentioned to \$11,534.89." Now, what are those contracts that you refer to there as having been entered into?

Mr. HUNTER. Contracts like those with Gardner, Franklin, Johnson, Nichols, and others, in which the cotton exceeded the amount guaranteed, so that instead of being obliged to pay the planter, we were released of any obligation incurred. In other words, about

two-thirds of the experimental field work that we did did not cost us anything.

The CHAIRMAN. I do not quite understand this explanation as to these two items. Have you a copy of this statement before you?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. That refers to \$7,000 reserve.

Mr. HUNTER. Yes, sir.

The CHAIRMAN. And \$9,815 of possible obligations.

Mr. HUNTER. The difference between \$9,815 and the \$2,449.18—

The CHAIRMAN. Is about \$7,400, say?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. That is \$14,500. [Reading:] "These two items, covering money set aside for emergencies and to enable the Bureau to enter into advantageous contracts, and in that sense used, reduce the unexpended balance above mentioned to \$11,534.89."

Mr. HUNTER. Twenty-five thousand dollars is the amount that was actually unencumbered at the end of the fiscal year.

The CHAIRMAN. Unencumbered? Do you use that word?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. How much of that was returned to the Treasury?

Mr. HUNTER. That is the amount that was returned.

The CHAIRMAN. Did you return that money?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. I thought it was available for another year.

Mr. HUNTER. No, sir; but as pointed out there, about half of that money had been used and set aside to cover possible obligations, and as the reserve which, we think, we ought to provide for in all cases. An isolated colony of weevils may appear in Georgia next year, and two or three similar colonies may appear in different parts of the South.

The CHAIRMAN. So much for that expenditure. Now, here is your expenditure for the first six months of the current fiscal year. At the headquarters at Dallas you have an estimate of \$400 for cotton seed.

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Is not that plant-industry work?

Mr. HUNTER. That is seed that is planted on these experimental farms. In some cases we furnish the seed, and in some cases we furnish the fertilizer that is used.

The CHAIRMAN. I will take up the item of fertilizers, \$3,000; you can speak of both together, please. You estimate \$3,000 for fertilizers.

Mr. HUNTER. Those two items of supplies, in many cases, we furnish to the planters who conduct this experimental field work for us. We have found that it is very unsatisfactory to depend upon the planters to obtain the special seeds that we should have planted for our experimental purposes. They are apt to get seed that is of poor pedigree; and when anything of that kind happens, of course it knocks out the results of the experimental work for one year. The same applies to fertilizers.

Mr. SCOTT. Suppose they should get seed of a poor pedigree. Would that have any bearing on the entomological problem?

Mr. HUNTER. Yes, sir. For instance, they might be supposed to get seed of a variety that would retain the squares on the plant in-

stead of letting them fall to the ground. That has an important bearing on the weevil problem.

Mr. SCOTT. I understand it has a bearing on the weevil problem, but I should think it would be on the cultural rather than on the entomological side of it.

Mr. HUNTER. The point is as to how the different conditions of the plant affect the weevils; what the weevil does under these different conditions established by the plant.

The CHAIRMAN. I want to put these tables in at the proper time. That is a statement of your expenditures, estimated and actual, for the first six months of 1907?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Rent—that is, the rent of your house in Dallas. Have you a laboratory?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. That is \$480 a year; no, that is \$240 a year, estimated to June 30, 1907. That will carry you through to the end of the year.

Mr. LEVER. How many acres have you under cultivation in these experimental farms?

Mr. HUNTER. Last year we had something like 1,800 acres. A large portion of it was not under contract; so the showing here from the contracts does not indicate the total number of acres that we had under experimental observations. We find planters here and there who are willing to undertake certain kinds of work without a contract.

Mr. LEVER. How many acres are there in your largest single experimental farm?

Mr. HUNTER. We had none last year over 75 acres.

The CHAIRMAN. You have here a little item of livery, \$240, expended to December 31, 1906, and \$240 estimated to June 30, 1907. Does that mean that you have expended it all already?

Mr. HUNTER. No, sir; that last column is additional.

The CHAIRMAN. To the first?

Mr. HUNTER. To the first; yes, sir. At Dallas we have our laboratory in the suburbs of the city.

The CHAIRMAN. Oh, it is additional to it?

Mr. HUNTER. Yes, sir. It is a regular monthly service under the competitive-bid basis. Our experimental farm is about 2½ miles from the laboratory, in the outskirts of the city of Dallas, and this livery service is to enable our men to get back and forth from the laboratory to the field quickly.

The CHAIRMAN. These men—Hunter, Hinds, Bishopp, Crawford, Hooker, Morgan, Pierce, Pratt, Yothers, Mitchell, Cushman, Jones, and Gison—are all entomologists?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. There are 13 of them.

Mr. SCOTT. You have not named all of them.

The CHAIRMAN. All the others are clerks.

Mr. SCOTT. Following down you will find other entomologists.

Mr. HUNTER. They are under different headings—"Work in cooperation with Louisiana," etc.

Mr. SCOTT. I think there are 25 entomologists altogether.

The CHAIRMAN. Where are those 13 at work now, Mr. Hunter?

Mr. HUNTER. Hunter, Hinds, Bishopp, Crawford, and Hooker are here and the rest are in the field.

Mr. SCOTT. What are they doing in the field at this time of the year?

Mr. HUNTER. Studying the habits of the weevil and hibernation of the weevil and at the same time getting manuscripts and reports into shape. A certain amount of work of that kind that can be done in the field these men can carry on with their regular field work. There is certain other work of that kind that has to be brought here.

Mr. SCOTT. Do you think they are learning anything this winter about the habits of the weevil and the hibernation of the weevil that they did not find out the first winter they studied it?

Mr. HUNTER. Yes, sir; they have made some most interesting and important discoveries. For instance, they have found, as I learned in a report just a few days ago, at Victoria, in a single dead cotton plant, five boll weevils, alive, that would probably go through to destroy the crop the next season. Of course we have known in a general way that they are apt to go through under those conditions, but there we have a very striking example of what the farmer could have accomplished by destroying those stalks. There we have a concrete illustration.

The CHAIRMAN. In three other winters was not any such example as that ever discovered?

Mr. HUNTER. None was ever discovered; no, sir.

Mr. SCOTT. Did you not know until just now that these boll weevils sometimes went through alive?

Mr. HUNTER. Oh, yes.

Mr. SCOTT. Then what was there new about that discovery?

Mr. HUNTER. The number. The number that were going through, and the condition under which they were going through, and the opportunity that the farmer had to prevent their going through.

Mr. SCOTT. Was it not about your first advice to the farmer to destroy the old plants?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. And all the other haunts of the weevil, so far as he could?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. I fail to see that the mere fact that he discovered that there were five boll weevils instead of perhaps one or two in a place where you had been accustomed to finding them all the time is of very great importance.

Mr. HUNTER. The importance of it is that this procedure of fall destruction of the plants has been taken up very slowly by the planters. Every concrete illustration like the one I have mentioned of the utility of doing that is going to have an important effect in getting the farmers to carry on that process.

The CHAIRMAN. "Expenses for traveling, supplies, and labor incurred by above men, \$10,344.64."

Mr. SCOTT. Pardon me, before you go to that. I want to ask another question.

The CHAIRMAN. Just keep on the life of this systematic inquiry.

Mr. SCOTT. Yes. You have mentioned this one discovery that these men have made in the field. Have you gathered anything

from their reports that would indicate that they have done anything else thus far this winter that is of any importance or value?

Mr. HUNTER. They have assembled and gotten together into shape a lot of data that has been accumulated, that adds to the sum total of our knowledge of the weevil; and in view of the importance of that insect, we think that it is exceedingly advisable to have absolutely full information.

Mr. SCOTT. How long is it since you were in the field yourself where these men are at work?

Mr. HUNTER. I left about the middle of December.

Mr. SCOTT. Up to that time they had been putting in pretty full time?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. You think they find work enough to keep them employed, do you?

Mr. HUNTER. I have no doubt about it whatever. The letters and reports that are sent to me indicate that.

The CHAIRMAN. How many men have you got down there in Texas in the field besides Morgan, Pierce, Pratt, Yothers, Mitchell, Cushman, Jones, and Gilson—eight? How many besides those men are down there that are on the pay roll to-day?

Mr. HUNTER. I will have to check this list to determine that—or shall I begin at the top?

The CHAIRMAN. I mean at the present time, you know.

Mr. HUNTER. Yes, sir. Pratt, Yothers, Mitchell, Cushman, and Gilson are in Texas. Jones is furloughed. He has gone home. He is not on the salary roll now, but will be taken back in the spring.

The CHAIRMAN. What other entomologists besides those in this list on page 1 of that exhibit, which we will call Exhibit B, are on the salary roll besides those that you have here in Washington? Hunter, Hinds, Bishopp, Crawford, and Hooker are at work here?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Now, you have 8 men on that salary list on the first page of Exhibit B, and what others have you? Mr. Scott says there are 25.

Mr. HUNTER. Over on the second page, under "Work in cooperation with Louisiana," you will find some more.

The CHAIRMAN. Newell, Buckner, Flynn, and Garrett are four more. That is 12?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. And in Texas, Sanborn is one—13?

Mr. HUNTER. Yes, sir; and on the last page there are four more.

The CHAIRMAN. How many does that make altogether—17?

Mr. HUNTER. There were two we overlooked at the bottom of page 2.

The CHAIRMAN. That is 19 entomologists that you have at work and on the salary list now?

Mr. HUNTER. I believe that is correct. [After making count.] I count 24, apparently.

Mr. SCOTT. That is what I made it—24.

The CHAIRMAN. Twenty-four entomologists, all at work at this moment, of whom five are in Washington and the balance in Texas and in Louisiana. "Expenses for traveling, supplies, and labor incurred

by above men, \$10,344.64. Estimated for another year, \$10,866.96." That would make a total for traveling expenses of \$21,000?

Mr. HUNTER. Yes, sir; traveling and incidental field expenses, like labor and small supplies.

The CHAIRMAN. What were those traveling expenses last year, under the previous bill, the year ending June 30, 1906?

Mr. HUNTER. I do not see any footing of that.

The CHAIRMAN. That is contained in those items on page 1 of Exhibit A, is it not?

Mr. HUNTER. Yes, sir; in the third column.

The CHAIRMAN. The second column of figures?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. "Expenses on trips of inspection by chief of Bureau, \$114.40." Doctor Howard, you did not get very far on \$114.40, did you?

Doctor HOWARD. I went down and went over the field with Mr. Hunter.

The CHAIRMAN. You have been down to Texas?

Doctor HOWARD. Oh, yes; I go down every year.

The CHAIRMAN. How many trips have you taken down there?

Doctor HOWARD. Altogether?

The CHAIRMAN. Yes.

Doctor HOWARD. I have taken one trip each year.

The CHAIRMAN. Can you go there and back for \$114.40?

Doctor HOWARD. I think so.

The CHAIRMAN. I do not see how you travel so cheaply. "Expenses, miscellaneous: Labor, furniture, supplies, post-office box rent, stationery, gas, electric light, drayage, express, etc., \$480." Where is that expended—here or in the South?

Mr. HUNTER. In the South; at the Dallas laboratory.

The CHAIRMAN. "Reserve fund for use in emergencies, such as the eradication of isolated colonies, \$5,000." That is all right. "Contracts covering"——

Mr. SCOTT. I would like to ask if you have ever had a case of isolated colonies?

Mr. HUNTER. Yes, sir; and they were successfully eradicated.

Mr. SCOTT. How did you manage it?

Mr. HUNTER. The cotton was uprooted and burned.

Mr. SCOTT. Where was that, as a matter of interest?

Mr. HUNTER. At Audubon Park, in the environment of New Orleans.

Mr. SCOTT. Near the city of New Orleans?

Mr. HUNTER. Yes, sir; on the outskirts of the city.

The CHAIRMAN. How extensive was that outbreak; and do you remember how much it cost, specifically?

Mr. HUNTER. There was an area of 12 or 15 acres of cotton, and my recollection is that the expense was a couple of hundred dollars.

The CHAIRMAN. Now we come to "Contracts covering field experimental work with following parties." I count up 23 names in experimental work there, as against 7 in 1906.

Mr. HUNTER. That difference is due to these 17 small contracts covering that experiment in Calhoun County. The aggregate of the 17 was \$2,900. It was practically one experiment.

The CHAIRMAN. Which ones are those (the 17 small contractors, I mean), and the names?

Mr. HUNTER. You can tell them by the Swedish derivation.

The CHAIRMAN. Skoberg, Johnsen, Svensen, Damstrom, Larsen, and those people?

Mr. HUNTER. Yes, sir; it is a Swedish colony located down there.

The CHAIRMAN. Why do you say "practically one?" Why would not 1 farm have been as good as 17 farms?

Mr. HUNTER. Because for our experimenting we wanted to destroy all the cotton in an isolated region. These people were the only people that had any cotton in that region.

Mr. SCOTT. That was the island, was it not, which you spoke of in your former hearing?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. And what was the object of that experiment; to find out what?

Mr. HUNTER. It was to perform, under the most favorable conditions, a large-scale experiment in the fall destruction of the plants, with the idea of determining whether farmers in a given region, by combining and cooperating as we had these farmers do, under contract, could totally eradicate the weevil from their neighborhood.

The CHAIRMAN. Then there would come the question whether they could eradicate them permanently or not, with the cotton boll weevil all around them, would it not?

Mr. HUNTER. Well—

The CHAIRMAN. Undoubtedly if you take away the food of the cotton boll weevil he will die.

Mr. HUNTER. But the point is, how soon?

The CHAIRMAN. But the minute you began raising cotton again would he not come in from the neighborhood?

Mr. HUNTER. The boll weevil feeds upon nothing but cotton.

The CHAIRMAN. Yes.

Mr. HUNTER. The point is to determine how long you must deprive the weevil of cotton through the winter and spring to result in its extermination.

The CHAIRMAN. Yes.

Mr. HUNTER. This experiment is located in such a way that it is exceedingly unlikely that weevils will ever get in from any other cotton regions.

The CHAIRMAN. I should say that is a valuable experiment for that little region of land; but if you determine that you have got to starve the weevil out (to sum it up in one word), and it takes one year or two years, then you would have to give up cotton over a tremendous area in order to starve him out of Texas, as an example?

Mr. HUNTER. There are a great many areas in Texas—

The CHAIRMAN. There are a number of localities that can be isolated, are there?

Mr. HUNTER. Yes, sir; localities that are more or less like this one. In making the examination during which we found this colony, we found lots of others of larger size, but this one was small enough so that we could handle it well. It did not cost very much money, and the isolation was very complete. There are a great many other cotton regions that are similarly situated.



The CHAIRMAN. What is the amount estimated for contracts covering field experimental work?

Mr. HUNTER. \$2,748.40.

The CHAIRMAN. "Expenditures in Washington: Expenses, miscellaneous: Supplies, stationery, apparatus, typewriter, etc., \$772.57." What do you require here in that line, with all this work done around there? In other words, are you not trying to maintain two headquarters unnecessarily?

Mr. HUNTER. No, sir. This item covers supplies that are on contract with dealers here in this city and elsewhere, that they obtain for us, and in many cases ship to Texas. A small share is used here in Washington, we think entirely legitimately, on account of the additional work involved in the office here because of our work done there, correspondence, and so on. This includes such items as stationery, envelopes, letter heads, etc.

The CHAIRMAN. Do I understand by that that if this money was not spent here it would have to be spent down there, if you had one headquarters?

Mr. HUNTER. Yes, sir; it is spent here because the supplies are obtained from the contract dealers here.

The CHAIRMAN. "Work in cooperation with Louisiana crop pest commission, \$10,000." You supply them, in the first place, with four entomologists, do you not—Newell, Buckner, Flynn, and Garrett?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. Are those gentlemen paid \$1,200 a year each?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. That will be \$4,800 for salaries toward the \$10,000—pretty near half of the \$10,000.

Mr. HUNTER. Yes, sir.

The CHAIRMAN. And the rest is practically all for traveling expenses, is it not?

Mr. HUNTER. Traveling and other expenses incurred by those men in the field.

The CHAIRMAN. You say "in cooperation with Louisiana." Exactly how is Louisiana cooperating with those four entomologists?

Mr. HUNTER. Mr. Newell is the entomologist of the Louisiana Experiment Station and the secretary of the commission.

The CHAIRMAN. Yes; you spoke of him before.

Mr. HUNTER. We appoint him as one of our special agents and pay him—

The CHAIRMAN. You raise his salary, then, from \$1,000 to \$1,200? Last year it was \$1,000.

Mr. HUNTER. No.

The CHAIRMAN. "Wilmon Newell." Is he not getting \$1,000 there?

Mr. HUNTER. The reason is that he was furloughed for one or two months during the winter, and that does not appear in that column. That column does not include the annual rate, but only the amount actually paid. He was furloughed for two months.

The CHAIRMAN. State just exactly how that cooperation is worked out, please.

Mr. HUNTER. Mr. Newell and I get together early in the season and go over plans for field work and all other kinds of work that we

are engaged upon. We have Mr. Newell nominate the men that he wants to assist him in that work in Louisiana. These men are then appointed by us. Each one of these men reports directly to Mr. Newell, but through Mr. Newell each one of them submits to me a detailed statement, weekly, of where he has been and what he has done. He includes his operations on every day.

When we desire to undertake any special investigation in Louisiana, I communicate with these men through Mr. Newell. In case it is necessary to collect a lot of parasites, parasitic material, or something of that kind over there, I communicate with Mr. Newell, and he has these men do the work, simply to have the matter centralized in the station officer over there.

The CHAIRMAN. Are they sending any men over the State themselves?

Mr. HUNTER. Yes, sir; they have two or three men, and are trying to get some more.

The CHAIRMAN. Do you know what those men are doing, exactly? Are they working just along the same lines that your entomologists are working?

Mr. HUNTER. The crop pest commission there has a lot of work aside from the weevil work.

The CHAIRMAN. Yes.

Mr. HUNTER. It is doing tick work, and doing inspection work of nurseries and orchards, and has some minor investigations on horseflies as transmitters of disease, and so on. Those other men are engaged on that kind of work. The weevil work that is being done over there is by these men listed here [indicating].

Mr. SCOTT. The cooperation with these State officials therefore consists, in fact, in your putting them on the Federal pay roll and directing them to some extent as to what they shall do?

Mr. HUNTER. Yes, sir; directing them rather explicitly. We found this system to work out in most complete harmony. Mr. Newell and I have never had any disagreement about plans to be followed, and on the whole we considered it a very satisfactory arrangement.

Mr. SCOTT. How much of his time does he give to your work, and how much to the work of the State?

Mr. HUNTER. He gives our work half of his time. Under the agreement with us, he is to give us half of his time; but I think, as a matter of fact, that he gives us two-thirds or three-quarters of it oftener than one-half.

Mr. SCOTT. Does the work that he does in the time that is not paid for by you contribute anything of value to your work?

Mr. HUNTER. Not directly. It is entomological work of a different kind.

Mr. SCOTT. The expense of the cooperation, then, is wholly borne by the Federal appropriation, as I understand?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. And it is really misnamed, is it not, when you call it "cooperative work?" Would it not be just as proper to call the work that any of these entomologists do under your direction, although they may be paid entirely by your appropriation, "co-operative work?"

Mr. HUNTER. In one sense. In the case of these Louisiana co-operators, we pay certain salaries and traveling expenses. We get from them their reports. They are joint officers of the Government and of the State of Louisiana.

Mr. SCOTT. Yes; but if they are not engaged along the same line of work that you are, their reports of the work they are doing for the State do not do you any good?

Mr. HUNTER. No, sir.

Mr. SCOTT. The general idea that comes to one's mind when you use the word "cooperation," with reference to work done between two parties, is that they are both engaged in the same line of work, one employed by one authority and the other employed by another authority.

Mr. HUNTER. Yes, sir.

Mr. SCOTT. So that each of these two parties contributes in an agreed ratio to the same end.

Mr. HUNTER. Yes, sir.

Mr. SCOTT. But from what you say, it seems to me pretty clear that the word "cooperation" ought not to be used in this connection.

Mr. HUNTER. Well, it seems to me that we have these men working along the same lines as our men—that is, they are working toward the same end.

Mr. SCOTT. They are working toward the end when we pay them for doing it, but when we do not pay them they are working toward a different end. Is not that true?

Mr. HUNTER. Yes; that is true.

Mr. SCOTT. It is not important at all; I merely want to get it clear.

The CHAIRMAN. Well, it is a little important, as showing the tendency to put everything off onto poor Uncle Sam—the whole thing. They do not want to save themselves; they want Uncle Sam to save them. That is the trouble with the whole situation.

Mr. SCOTT. I simply want to develop that as a matter of fact it is not cooperation at all. We are simply employing these people and getting nothing in return for it.

The CHAIRMAN. "Allotment for joint investigations between the Bureau of Entomology and the Bureau of Plant Industry, \$10,000." I see there is also an item as to cooperation with Texas. I suppose what you have said in regard to cooperation with Louisiana covers that?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. You only have the salary of one entomologist there, C. E. Sanborn. By the way, who is he?

Mr. HUNTER. He is an entomologist who originated in Kansas.

The CHAIRMAN. I mean, is he an employee of the Texas Experiment Station?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. And this is in addition to his salary from the State?

Mr. HUNTER. Yes, sir; in addition to what he is paid by the experiment station.

The CHAIRMAN. In other words, you have to give them a prod to do a little work. They ought to be willing to pay him what he is worth, and then they ought to be willing to take the advice of the

central department or not, one or the other. They either ought to act on it or not, but they ought to pay. That is my point on this whole thing. It is one form of centralization.

"Allotment for joint investigations between the Bureau of Entomology and the Bureau of Plant Industry, \$10,000. The Bureau of Entomology has allotted \$10,000 and the Bureau of Plant Industry \$12,000 for a joint investigation relating to problems more or less in the domain of both Bureaus. It includes a study of the efficiency of the weevil, resistance and adaptability of the cotton plant, local bionomic factors, and bionomic explorations of Central American cotton culture."

Mr. HUNTER. Interrelations between the cotton plant and the weevil.

The CHAIRMAN. Just tell us what that joint work between the bureaus is.

Mr. HUNTER. The boll weevil and the cotton plant have been pretty intimately associated for centuries. Whole sets of interrelations have sprung up between the weevil and the plant. The plant has acquired certain tendencies that have the effect of thwarting the weevil. For instance, under some conditions a gummy substance is formed in the fruit that grows so rapidly that it destroys the weevil inside. Another tendency on the part of the plant that checks the weevil is the hanging of the bolls and squares. Instead of sticking up, so that the weevil has ready entrance, they hang down, so that the weevil has to crawl down, which is rather distasteful to him. Those two things illustrate the class of protective adaptations on the part of the cotton plant. They must be studied in connection with the weevil. If they were studied absolutely from the plant side the results would be apt to be misleading. If they were studied from the weevil side the results might be equally misleading. They are matters which must be approached at the same time from both the weevil and the plant side.

Mr. O. F. Cook is the man who has charge of this work. He has made many interesting discoveries in Guatemala about the resisting qualities of the cotton plant. The point is, in this country, to reproduce those weevil-resisting adaptations, and, if possible, accentuate them. It is work that, as I say, concerns both the insect and the plant, the interrelationships between them; and Doctor Howard and Doctor Galloway have considered that the best way to approach that subject was to make these two allotments from the different bureau appropriations. This concerns the \$10,000 allotment by the Bureau of Entomology.

The CHAIRMAN. In connection with that work you have McLachlan, Doyle, Goll, Jordan, Rose, and Meade. They are all either entomologists or plant-industry men?

Mr. HUNTER. Well, they are both. They are primarily botanists, plant-industry men, but also men who either know originally or have picked up a great deal about entomology. The work that they have been engaged in practically makes entomologists of them.

The CHAIRMAN. The next item is "Expenses: Letters of authorization covering traveling and other expenses for above men." What do you mean by "letters of authorization?"

Mr. HUNTER. Before any employee of the Department can incur any expenditures whatever that he has any hope of being reimbursed

for, he must have a specific letter of authority authorizing him to incur them and specifying exactly what he may incur. A man can not travel anywhere without a letter of authority.

The CHAIRMAN. That item is for the men under the cooperative work only?

Mr. HUNTER. Yes, sir; those six men.

The CHAIRMAN. What is that rent of \$96?

Mr. HUNTER. That is for the establishment at Victoria, located down there in the most favorable region in Texas, for testing these imported cottons from Central America. That is where they are brought into contact with the weevil conditions of this country.

The CHAIRMAN. Your recapitulation shows that your appropriation is \$85,000; expended to December 31, 1906, \$33,347.57; estimated to June 30, 1907, \$48,639.03; which shows an unexpended balance of \$3,013.40. That, added to the \$5,000 which you have reserved for isolated outbreaks, would make a total reserve of \$8,000, would it not?

Mr. HUNTER. Yes, sir.

The CHAIRMAN. That is all I wish to ask.

Mr. LEVER. Doctor, let me ask you just a few questions. You have about from 20 to 25 entomologists doing this work?

Mr. HUNTER. Yes, sir.

Mr. LEVER. And you are studying the life history of this insect?

Mr. HUNTER. Yes, sir.

Mr. LEVER. As a matter of fact, have you not about completed the study of the life history of the insect? Do you not know about all about him that you can learn?

Mr. HUNTER. No; for the simple reason that the insect's habits are changing. We know a great deal about what the habits of the insect are at present.

Mr. LEVER. You know his habits in the State of Texas, we will say, pretty well?

Mr. HUNTER. Yes, sir.

Mr. LEVER. And in Louisiana, too?

Mr. HUNTER. The weevil has only been in Louisiana for two years, and throughout the majority, the greater portion, of that State it has not been there long enough to get in touch with the local conditions. There is a great deal about its habits in Louisiana that we do not know.

Mr. LEVER. Then your study of the life history of the insect will be confined largely hereafter to Louisiana and to—

Mr. HUNTER. To the new regions.

Mr. LEVER. Do you not think it would be possible to continue this study with about half a dozen entomologists, or something like that?

Mr. HUNTER. We could do something with a smaller number of entomologists. The view that we take of the situation in the Department is that although the weevil problem has been a serious one in Texas, it is going to be a much more serious one elsewhere, and that in view of that fact it would be undesirable to cut down the force engaged.

Mr. LEVER. You just want to move your line up with the weevil?

Mr. HUNTER. Yes, sir.

Mr. LEVER. Now, another question: You have discovered a parasite, I understand?

Mr. HUNTER. Yes, sir; numbers of them.

Mr. LEVER. Do you have any hope of success through this parasite?

Mr. HUNTER. Very decided hope of success.

Mr. LEVER. You do? Well, now, Doctor, in your judgment, do you not think that about the only possible way by which we can control the boll-weevil situation is through cultural methods—to grow this cotton in spite of the boll weevil? Do you not believe that is the only remedy, really, in the end?

Mr. HUNTER. No, sir; I can not say that I do. I think that very valuable results always will be obtained from mere cultural expedients; but, at the same time, the parasites may add enormously to what the farmer brings about by his cultural means. It is altogether likely that we may be able to perfect means of breeding these parasites and of distributing them that will assist very decidedly.

Mr. LEVER. Is your greatest hope along the line of these parasites?

Mr. HUNTER. Yes, sir.

Mr. LEVER. Could not half a dozen entomologists ferret out this parasite problem as well as 26?

Mr. HUNTER. It is a problem that must be considered in many ways. For instance, in starting the work under parasites it was necessary for us to make a general examination of the infested territory to find what parasites were in existence and exactly what they were doing. That took a number of men and an immense amount of hard work. Besides that, the conditions in older regions where the weevil has existed must be looked into. There may be parasites down there that are just now transferring their attention to the weevil, exactly as happens to be the case in Texas. Some one of those may turn out to be more advantageous to bring to this country and distribute than anything indigenous here.

Mr. LEVER. Are you making investigations outside of this country with a view of getting parasites?

Mr. HUNTER. Yes, sir.

Mr. SCOTT. You stated, I believe, that you obtained from these field experiments which you conducted during the past year a considerably less quantity of cotton than the average yield throughout the country?

Mr. HUNTER. No, sir; I think I did not make my meaning clear. The average guaranty made under all these contracts was considerably less than the average production per acre in the United States.

Mr. SCOTT. And yet in some cases you did not come up to that guaranty?

Mr. HUNTER. Yes, sir; in very few cases.

Mr. SCOTT. How do you account for that?

Mr. HUNTER. It is all due to the fact that in experimental work of that kind we must have our checks. The only way to interpret the results of field work is to have checks. For instance, we have a certain plot or plots of ground planted early in this experimental work, and in order to determine exactly what result earliness brings about we have to have plots planted late. Those cases where we have been compelled to pay obligations under our contract are ones analogous to that, where, for instance, there has been a great deal of late cotton

grown under contract to enable us to interpret the results of our work.

Mr. SCOTT. I asked that question because it occurred to me that if the fields that were growing under your direction produced a less quantity of cotton than the farmers were able to raise with their usual methods it would have a tendency to discredit the Government work.

Mr. HUNTER. Yes.

Mr. SCOTT. And in that way the results that you hope to obtain would be lost.

Mr. HUNTER. Yes. I have made it clear, have I not, that the fact is that these places have averaged much more than the average production in the United States?

Mr. SCOTT. No; you did not make that clear; at least it was not clear to me. I gathered from what you said when this matter was brought to your attention, some time since, that the average production of your experimental fields was much less than the average.

Mr. HUNTER. No, sir; I misstated myself if I gave that impression. It is the amount guaranteed to these farmers that averages less than the average production in the United States. When the production goes over that amount of course the farmer gets the benefit of it.

Mr. SCOTT. Yes.

Mr. LEVER. The average yield of cotton per acre in this country is about 187 pounds of lint, is it not?

Mr. HUNTER. The average estimate is a bale to 2.3 acres, which would figure out just about that.

Mr. LEVER. About 187 pounds of lint, I think.

Mr. HUNTER. Yes.

Mr. LEVER. And your average is above that on all your experiments?

Mr. HUNTER. Very considerably above it.

The CHAIRMAN. I have had these items footed. The traveling expenses for the year ending June 30, 1906, according to Estimate A, amount to \$8,264.15.

Doctor HOWARD. Mr. Chairman, Mr. Scott's questions to Mr. Hunter a little while ago suggested to me that it would be well to make this statement: We have not made any great discovery which is striking in its effect in regard to remedies for the boll weevil; but the very fact that this cultural method has been developed, and the very fact that the farmers are able to grow cotton in spite of the weevil, is due entirely to the investigations of the Bureau of Entomology. It is all based upon that fact, Mr. Scott.

Mr. SCOTT. I think I understand that, Doctor Howard.

The CHAIRMAN. Entirely due to the Bureau of Entomology?

Doctor HOWARD. Entirely so, sir.

The CHAIRMAN. And not to the Bureau of Plant Industry and Cultural Methods?

Doctor HOWARD. The Bureau of Plant Industry, in its demonstration work, is simply applying the knowledge we have gained and demonstrating what we had already proven; that is all. That does not seem to be thoroughly understood; neither does the difference between the demonstration farms and the experimental farms seem to be thoroughly understood. The experimental farm is simply doing

laboratory work out of doors on a large scale. We find out the facts about the life history of the insect and we make a theoretically practical suggestion from that. But it is not worth much until we have tested it outside. We have to have these large-scale field experiments in order to test our more or less theoretical ideas.

Mr. SCOTT. I think we understand that.

Doctor HOWARD. Yes, sir.

Mr. SCOTT. The purpose or the thought in my mind that prompted my questions was this, Doctor: The men who have had charge of the cultural methods have reported to us that by the production of seed which produces a plant that matures rapidly, by preparing the ground properly in advance, by putting the rows a proper distance apart, by the use of fertilizer, and by proper methods of cultivation, they have succeeded in growing better crops of cotton in spite of the weevil than were grown before the weevil made its appearance.

Doctor HOWARD. Yes.

Mr. SCOTT. Now, along with that information there came to us also the conclusion, expressed, I think, by Doctor Hunter, that we would always have the boll weevil with us; that we might as well settle down to that fact, and get ready to get along with him as we get along with the chinch bug and a thousand other pests. Putting those two facts together, the thought I had was that the work of your Bureau, which we all know has been of great value in pointing the way to these cultural methods, has really accomplished about all that it can accomplish. That was the thought behind the questions that I was asking.

Doctor HOWARD. That is a very natural thought, Mr. Scott. At the same time, as Mr. Hunter has pointed out, the insect is changing its habits, even in Texas.

Mr. SCOTT. Let me ask you a question there: We have been accustomed to regard evolution as an age-long process. Does the cotton-boll weevil change over night its habits of life?

Doctor HOWARD. No.

Mr. SCOTT. Does it evolve into something entirely different in the course of a season?

Doctor HOWARD. No; not at all.

Mr. SCOTT. Then, if you are going to undertake to study the changes that are brought about by a shifting from one climate and environment into another, would you not better postpone it until those changes have had time to work themselves out in the insect?

Doctor HOWARD. That is a very ingenious point; but I think we had better keep at it.

Mr. SCOTT. I do not mean it to be ingenious; I am asking it in perfect good faith.

Doctor HOWARD. I know; but I think it better to watch it with extreme care from year to year, Mr. Scott—altogether best, from the practical point of view.

Mr. SCOTT. I notice in our estimates here that you put the total salary cost per annum expended out of this appropriation of \$82,500 for the extermination of the gypsy moth at \$8,700. What is done with the remainder of the \$82,500?

Doctor HOWARD. We have only spent \$45,000 of the \$82,500 so far.

Mr. SCOTT. How much do you think you will spend between now and the 30th of June?



Doctor HOWARD. We expect to spend every single cent of it; and we really hope that you will make some of this next appropriation immediately available, if you give it to us at all.

Mr. SCOTT. And outside of salaries how do you expect to use it?

Doctor HOWARD. The main expenditure is in labor. We have spent, for example, up to the present time, as I find from my books, something like \$33,000 for labor.

Mr. SCOTT. How do you use that labor?

Doctor HOWARD. It consists of laboring men who are hired at a rate of \$2 a day for the ordinary men and \$2.50 for foremen, and they have been doing actual extermination work against the gypsy moth since the 1st of July. When I appeared before the committee last year I was somewhat hazy in my mind as to what we could best do in the way of preventing the spread of the moth; but after the appropriation was made I went to Massachusetts and talked with the superintendent having charge of suppressing the moth under the State, and with his head men, and I decided that this was the best scheme to follow, and this is the plan that we have followed up to the present time—to keep scouting parties (that is, parties looking for the advent of the moth) on the outskirts, but to devote our main work toward actually cleaning up the main traveled roads leading from the most thickly infested centers.

The CHAIRMAN. So as to prevent the carrying on of the infection?

Doctor HOWARD. To prevent its being carried out on automobiles, carriages, etc.

Mr. SCOTT. At what time can this work be most effectively done?

Doctor HOWARD. That work can be done all the year round. The work upon the caterpillars themselves, by spraying and banding, etc., can only be done during two months, say, during May and June; but the rest of the year the men can be employed, even in the winter time, with the detection of the egg masses and placing creosote upon them in the outskirts. They can be working and cleaning up the trees, so that next year the caterpillars will have no chance to fall down on the shoulders of people passing and on trolley cars and other vehicles. The result is that the Massachusetts State road and the Newburyport turnpike have been cleaned up in that way by forces of men engaged in cleaning out underbrush and in clearing up the main trees, not only the actual roadside trees, the shade trees, but also for a hundred feet back into the infested woodlands. That means that along those roads there will be absolutely no opportunity for caterpillars to fall down upon passing vehicles or passing persons and thus be carried out.

Mr. SCOTT. Are the State authorities of Massachusetts using some of their funds for this same kind of work?

Doctor HOWARD. Not for exactly the same kind of work. They are cleaning up, or helping to clean up, infested woodlands only owned by the State—park lands, and forests of that kind. They are also spending the majority of their money in assisting the towns and individuals in cleaning up shade trees and trees in orchards and on private property. They have an interesting law, you know, which says that a certain town shall spend, under the direction of the superintendent, a certain amount of money, and they can be reimbursed on a certain percentage of the taxable value of the property from the

State appropriation. It is estimated that the State of Massachusetts has spent this year over \$700,000—just that one State.

The CHAIRMAN. By direct and indirect appropriations, you mean?

Doctor HOWARD. By direct and indirect appropriations; yes.

Mr. LEVER. Doctor, you estimate for \$200,000 for this work for the next year?

Doctor HOWARD. Only \$150,000. The Secretary sent a supplemental estimate, I believe, making it \$150,000.

Mr. LEVER. Do you think you can spend that amount economically and advantageously?

Doctor HOWARD. To excellent advantage, I think.

Mr. LEVER. To excellent advantage?

Doctor HOWARD. People who have been engaged in gypsy-moth work with me—I was in Massachusetts at the time you called me before the committee last week—people in Massachusetts who have been familiar with it from its inception say that they have never seen such a perfect and admirable piece of work as has been done by our men during this last summer and fall.

The CHAIRMAN. Who were these men?

Doctor HOWARD. The man I chose for the man in charge was the assistant superintendent of the State.

The CHAIRMAN. A Massachusetts man?

Doctor HOWARD. Yes; I took the advice of Mr. Kirkland.

The CHAIRMAN. They could have done it if they had only wanted to do it?

Doctor HOWARD. Yes; I think so. I took him as director. He has picked his own men. He is accustomed to handling laboring men, and he has been working in a very excellent way. The other branch of the work which is going on is the parasite work, which includes the parasites we are importing from Europe, you know; and that seems to be bringing good results. We liberated last year 65,000 specimens of European parasites in woodlands around Massachusetts, and we found out that four species went through two generations, and they are probably hibernating successfully at the present time.

Mr. HENRY. Right there, Doctor. Are you getting hopeful results from the parasites?

Doctor HOWARD. Yes, sir.

Mr. HENRY. Is the area extending where the gypsy moth is found? I do not mean the outlying outcroppings, but the immediate area?

Doctor HOWARD. The immediate area of the moth is being decidedly reduced in the interior part by the work of our men.

Mr. HENRY. You are reducing the number yearly?

Doctor HOWARD. Yes, sir; very greatly. For example, we have had a force of men working in the city of Providence.

Mr. HENRY. Are you doing all the work in Rhode Island?

Doctor HOWARD. Not all of it; no, sir. The State spent some \$20,000 last year, and expended all the money she had. Then she turned over her force of men to us, and we have been carrying the work on this winter. They are asking for \$25,000 from the legislature now for the State of Rhode Island.

Mr. HENRY. Yes. Our State is making appropriations this year for that kind of work, under Professor Britton. Have there been appropriations in New Hampshire and Maine for the gypsy moth?

Doctor HOWARD. Yes; the lower tier of counties in New Hampshire is infested. We have located about seventeen colonies in the lower counties of New Hampshire.

Mr. HENRY. What is New Hampshire doing?

Doctor HOWARD. New Hampshire has a bill before her legislature at the present time, which is based upon the Massachusetts State law, requiring towns to take up the work, with certain reimbursement from the State. The State of Maine has a similar bill before her legislature this year, and our scouting parties have discovered the eggs in Maine for the first time within the last four weeks—it had not been known in Maine before—five or six colonies in south-east Maine.

The CHAIRMAN. How extensive are those colonies?

Doctor HOWARD. Very small; only a few egg masses.

The CHAIRMAN. Is the State doing anything?

Doctor HOWARD. The State has a bill in the legislature now, and the State is very much interested. I went up in September and addressed public meetings in Portland and Bangor and Augusta, and there was the greatest interest, and everybody seemed inclined to think that the State ought to make an appropriation this year; and I have no doubt that she will.

The CHAIRMAN. They are small colonies so far?

Doctor HOWARD. They are small colonies; yes.

Mr. HENRY. Doctor, you have said nothing about the brown-tail moth. What have you to say in regard to that?

Doctor HOWARD. We can not stop the spread of the brown-tail moth.

Mr. HENRY. You can not?

Doctor HOWARD. No, sir; we can not stop it.

Mr. HENRY. But has there been anything done in the way of discovering parasites for the brown-tail moth?

Doctor HOWARD. Yes; these parasites that we have brought over from Europe are parasites of both the brown-tail moth and the gypsy moth.

Mr. HENRY. The same parasite attacks both?

Doctor HOWARD. They are particularly valuable—the same species. The brown-tail moth is spreading rapidly by flight as well as by the carriage of the caterpillars, and it already includes a region from away up on the Maine coast clear to Amherst, Mass.

Mr. HENRY. You of course have no hope of exterminating the brown-tail moth entirely?

Doctor HOWARD. No, sir.

Mr. HENRY. Now about the gypsy moth. Do you think it is practicable to entirely exterminate the gypsy moth?

Doctor HOWARD. I fear that it will not be exterminated. All that we can do, I think, is to hold it in check and prevent the further spread of the gypsy moth until the parasites shall have brought about the condition of stable equilibrium which exists in Europe.

The CHAIRMAN. Even then the moth will spread a little if you leave him alone?

Doctor HOWARD. Then he will spread a little; unquestionably, yes.

Mr. HENRY. But the parasite will spread with him?

Doctor HOWARD. But the parasite will spread with him, and he will no longer be a first-class pest.

The CHAIRMAN. As I understand it, the gypsy moth is pretty much all over Europe; is he?

Doctor HOWARD. All over Europe, and all over Asia.

The CHAIRMAN. All over Asia?

Doctor HOWARD. Yes; especially in Japan.

The CHAIRMAN. And is the parasite all over Asia and all over Europe, too?

Doctor HOWARD. There are different parasites for different parts of the country.

The CHAIRMAN. But there is a parasite in all parts of the world?

Doctor HOWARD. Yes; there are 52 distinct species of parasites of the gypsy moth known in Europe.

Mr. HENRY. And it has found a congenial home in Massachusetts.

Mr. LEVER. Doctor, have you mapped out your work in this connection for next year; or have you any plans?

Doctor HOWARD. Yes; to carry on the same—

Mr. LEVER. The failure of Congress to give you an appropriation of \$150,000 would seriously interfere with your plans and handicap you very much in this country?

Doctor HOWARD. No; we could go on in exactly the same way that we have done this year, with the small appropriation, if you give us as much as you gave us this year; but we could do more and better work if you gave us \$150,000.

Mr. LEVER. You could do more and better work?

Doctor HOWARD. We could do more and better work if you could give us \$150,000. It would make a very decided difference in the efficiency of the work if we had more money. We could employ more men and cover more territory, you see.

Mr. LEVER. This is work in which you need a lot of men and in which a lot of men can work?

Doctor HOWARD. Yes; that is it. We have 118 men on the pay roll now—118 laborers.

The CHAIRMAN. What are they doing at the present moment?

Doctor HOWARD. They are cleaning up roads, and there are 20 of them engaged in scouting.

The CHAIRMAN. Can you carry on that work with snow on the ground?

Doctor HOWARD. Yes; you can do it with snow on the ground. They find the egg masses; they know exactly where to look for them. They have trained men who have been engaged in the State work as foremen of gangs. A man very soon picks up a knowledge of the life history of the insect and is able to recognize the egg mass when he sees it—it is rather a conspicuous object—and they are scouting through the old orchards and along the roads in southern New Hampshire and in the vicinity of Providence, R. I., and in southeastern Maine, as well as along the borders of the Massachusetts line, which is now about Worcester, for the gypsy moth.

Mr. HENRY. Has it reached Worcester?

Doctor HOWARD. Yes; it has reached Worcester. It now covers an area of over 2,200 square miles in the State of Massachusetts.

Mr. HENRY. Then it has spread recently?

Doctor HOWARD. Within the last five years. When they stopped the State work in 1900 it covered only about 400 square miles. In

the interval, when there was no work, it spread until it covers 2,200 square miles.

Mr. HENRY. A larger area.

The CHAIRMAN. What do you hope to accomplish with an additional appropriation?

Doctor HOWARD. Simply to cover more territory and clean up these roads more rapidly.

The CHAIRMAN. You say you have no hope of exterminating it?

Doctor HOWARD. Very slight.

The CHAIRMAN. Then all you can do, practically, is to hold it in check until your parasite grows?

Doctor HOWARD. Yes.

The CHAIRMAN. And is a counterbalance?

Doctor HOWARD. Yes. We can hold it in check very much more effectively the more money we have, of course.

The CHAIRMAN. You are practically holding it in check now, are you not?

Doctor HOWARD. I do not know, I am sure. I can not tell you. It may be spreading. If so, we do not know it.

The CHAIRMAN. I think Mr. Henry said they exterminated the colony in Connecticut the other day, did they not, Mr. Henry?

Mr. HENRY. Why, they think they have at North Stonington. They are not entirely through. They are watching. They have to watch it.

The CHAIRMAN. That was probably carried by the automobiles.

Mr. HENRY. Yes; but it is an isolated locality, you know.

The CHAIRMAN. It is off of the automobile roads?

Mr. HENRY. Yes. You would hardly expect to have an outcrop there. It is one of the last places where you would expect it. It is off the line of travel.

Doctor HOWARD. Have you heard that the peace conference at Portsmouth was responsible for the introduction of the insect up there? That is an interesting point. So many people went in automobiles up into that region that they carried hundreds of those caterpillars up on their machines, and they dropped off along the road. Wherever they stopped the caterpillars would drop off, you see.

The CHAIRMAN. What about this rootworm in grapes in western Pennsylvania, Doctor? Mr. Bates, a Member of Congress, came to see us the other day, and said he went down to see you people, and that you said you could not do a thing without an additional appropriation; that your plans were all laid, and that you could not change them without an additional appropriation. That struck the committee as rather extraordinary—that you had no elasticity to your plans to enable you to meet an emergency or to meet a case like this. What about it?

Doctor HOWARD. There is, of course, a certain amount of elasticity, and we could meet a certain emergency, but, you see, it is very difficult.

The CHAIRMAN. You have a man named Johnson up there now, who is doing work for the apples and pears and peaches.

Doctor HOWARD. Yes.

The CHAIRMAN. Why could not that man examine into this question?

Doctor HOWARD. He could devote some attention to it; there is no doubt about that. If the committee will give us the general increase that we want we can handle that question, I think, and we can also handle some other questions that Members of Congress may be bothered about. For example, the insects injurious to the deciduous fruits in California—several Congressmen have been to see me about that and other similar matters.

The CHAIRMAN. Now, there is another case. What in the world is the experiment station of a great big rich State like Pennsylvania doing? What are the entomologists of the State doing?

Doctor HOWARD. They have no entomologist in the Pennsylvania State Station. They have a State zoologist, who is supposed to handle these questions; but he has no assistants and small funds. The State experiment station does nothing in entomology.

The CHAIRMAN. Do you mean that a great rich State like Pennsylvania has not any entomologist connected with her agricultural experiment station?

Doctor HOWARD. No, sir.

The CHAIRMAN. And California, with all her rich fruit interests—she must have not only an entomologist, but entomologists, connected with her experiment station?

Doctor HOWARD. She has an entomologist connected with her experiment station; but the practical men seem to have little confidence in him.

The CHAIRMAN. Well, that is ridiculous.

Doctor HOWARD. You will remember that the Secretary asked for \$45,000 increase of the lump fund for the Bureau.

The CHAIRMAN. Yes.

Doctor HOWARD. And if you should be inclined to give us that amount I think we can handle this case in northeast Pennsylvania and also these other cases that are bothering you.

The CHAIRMAN. As I have said so often it seems to me as if the various States are all coming here to the Agricultural Department and trying to get it to do this work on the plea that they have no confidence in the scientists of the experiment stations; if not for that reason, for some others.

Doctor HOWARD. The Department is in a bad case, because the minute we enter a State the experiment station always is inclined to feel that it ought to be consulted first, you know, before the Department of Agriculture enters any State at all to carry on an investigation. You have had hearings before your committee which show the feeling of the stations.

The CHAIRMAN. We granted the stations \$5,000 additional each last year, which will reach \$15,000 in another year or two, making it \$30,000. Now, there is a bill before us appropriating \$10,000 for the agricultural colleges. It looks to me as if an attempt was being made to saddle the whole expense on Uncle Sam.

Doctor HOWARD. Some of the States are doing very well.

The CHAIRMAN. Oh, yes; some of them; but there is the State of California. Her greatest interest, you might almost say, is in her fruit industry.

Doctor HOWARD. Yes.

The CHAIRMAN. And I imagine, from what I can get from the data of the Agricultural Department here, that the Agricultural Depart-

ment is doing more work in the State of California than in any other State of the Union.

Doctor HOWARD. They are doing a great deal.

Mr. LEVER. Doctor Galloway, suppose we increase your appropriation \$50,000, can you use that money advantageously in the widening of your demonstration farm work?

Doctor GALLOWAY. We could use thirty-five to fifty thousand dollars advantageously in connection with this general propaganda work that Doctor Knapp has outlined, and that would be our plan in the case of the boll weevil, for the reason that he has as early as last September laid out a scheme to branch out into counties in Mississippi and surround the whole thing with a sort of cordon, which requires about a thousand dollars for each county. With the \$39,000 that we have this year we can go just so far, and if it was increased \$35,000 we could go just so much further.

(The committee thereupon took a recess until 2.30 o'clock p. m.)

AFTER RECESS.

**STATEMENT OF OVERTON W. PRICE, ESQ., ASSOCIATE FORESTER  
IN CHARGE OF FOREST MEASUREMENTS, BUREAU OF FOR-  
ESTRY, AGRICULTURAL DEPARTMENT.**

The CHAIRMAN. Mr. Price, it has been suggested by Congressmen here that the Government, having taken over this big body of timber, controls the lumber market absolutely in the section complained of and is asking monopolistic prices for the timber.

Mr. PRICE. When the reserves came over to the Department of Agriculture, timber was being sold from them at a set price of a dollar a thousand. No study was made on the ground to determine the value or the differences in value on certain reserves under different conditions. The thing was handled in a purely clerical way, at a set price of a dollar a thousand. When we took the reserves one of the first things we did was to put expert lumbermen in touch with the timber-sale business on the ground, to vary the prices of different species of timber, and under different sets of conditions, and to get as nearly as we could what the timber was actually worth. In no case have we tried or are we trying to make the business pay "all the traffic will bear," so to speak. We are trying to encourage the timber-sale business and to leave in each case a fair margin of profit.

The best proof we can give you that we have been fairly successful in that is that we now have under sale about a billion feet. If we had the trained men to handle the business in the way we would like to, we could easily run those sales inside of a year up to double that amount. We have applications already that will pretty nearly double it. Our timber is going like "hot cakes," so to speak. It is going very freely.

The CHAIRMAN. Notwithstanding, then, these high prices that you are supposed to ask, they are buying it?

Mr. PRICE. They are buying it like "hot cakes," and would buy double the amount that they do if we had the men to handle the business. What has happened in the past is that big lumber owners in the West have gotten Government timber so cheaply that it has paid them to buy Government timber and hold their own for a rise of value.

Mr. SCOTT. That is a very important point.

Mr. PRICE. And we have run up against just this kind of cases: Cases where a man has come to buy timber and has offered a certain amount for it, and we have found that he had some hundreds of thousands of acres, in some cases, of timber of his own which he could have used.

The CHAIRMAN. But he preferred to allow it to grow, and buy Government timber cheaply?

Mr. PRICE. To allow it to grow, and buy Government timber cheap. I think I can give a characteristic example of just that kind of objection, sir, and of what there is in it.

Shortly after we got the reserves there was an application for the purchase of 50,000,000 feet of lumber by the McShane Lumber Company, in the Big Horn Forest Reserve in Wyoming. We looked up the McShane people and their transactions with the forest reserves before they were transferred to us, and found that they had been frequent and quite considerable purchasers of the reserve timber, and that the reserve timber had been sold to them for a dollar a thousand. They applied for this new batch of 50,000,000 feet at a dollar a thousand. We knew it was a rough country, that the timber was not very good, and we were just about to close the sale when it occurred to us that it might be a good plan to send a trained man out there and have him look it up. We sent the best man we had, and he reported that the timber was worth \$2.50 a thousand. In other words, there would be a saving of \$75,000 on that sale if we could get it. We got his report and were satisfied that that was a fair price.

We asked him if he was charging all the traffic would stand, and he said no; that as a lumber man he was assured that that was a fair price for that timber, and allowed a fair margin of profit, and we stood on his report.

The lumber company's representatives came in and threw up their hands, and said that they had been buying Government timber for a dollar a thousand; that on the basis of that they had made a contract in advance with the Burlington Railroad for ties, and that if they paid \$2.50 they would be losing money hand over fist, and would be put out of business. We took their statement for what it was worth, and advertised the timber for \$2.50 a thousand, and they bought it. Not only have they bought it, but a few weeks ago the senior member of the firm was in Washington, and they now want to buy approximately 30,000,000 feet for the same price and on the same watershed, in addition to the 50,000,000 they have now. So we do not put much reliance on that class of "kick."

Then again, Mr. Chairman, another valuable point, I think, is that although our sales to big companies are increasing, our sales to the small men are increasing much more rapidly, in a much higher ratio. Our sales that are most active now are our small sales on the reserves—what we call supervisors' sales. The distinction is that the supervisor sells up to 5,000,000 feet, while above 5,000,000 feet the sales are made by the Forester, and handled at this end.

Then again, of course, sir, it stands to reason that there are certain bodies of timber in the reserves which can not be exploited by the small man. For instance, take that body of timber in the Big Horn Forest Reserve. There is no local use there, or comparatively very little. The small man would never have wanted that timber. If he



had, he could not have gotten it out at a profit, because it involved the building and maintenance of a flume over 20 miles long and exceedingly expensive permanent improvements before they could cut a stick at a profit. It needed capital to utilize that timber at all. It was not a small man's proposition. We have handled a great many propositions of that kind, and we try to keep for the small man the most readily available timber, which he can get out easily without excessive outlay.

The CHAIRMAN. How available was this timber that he paid \$2.50 for?

Mr. PRICE. It was loblolly pine timber, to be put into railroad ties for the Burlington Railroad, cut in the high mountains and driven about 20 miles by flume—very difficult logging operations, indeed; but he is logging that timber at a profit and he wants more.

Mr. SCOTT. Heretofore, and indeed at present, all of this heavy fir timber on the Pacific coast, which you say runs sometimes 100,000 feet to the acre—

Mr. PRICE. Or more—yes, sir.

Mr. SCOTT (continuing). Or more has been sold, and where it is yet on the public domain it is open for sale at \$2.50 an acre, is it not?

Mr. PRICE. Yes; yes; it is still.

There is just one other point regarding that statement that we can monopolize timber and arbitrarily regulate lumber prices: We can never do either of those things, because the timber in the forest reserves is very, very trifling in amount, compared to the timber in private hands in the West.

Mr. SCOTT. Can you give us an idea of the number of acres of timber in the reserves that is a lumberman's proposition, or the percentage of it, if that would be easier?

Mr. PRICE. The percentage of it probably would be about half; from a half to two-thirds. We simply do not know yet. The thing is too new, but it will not fall below a half, and it may go up to two-thirds. Then another reason, sir, why we can not arbitrarily fix or influence to a considerable degree lumber values is that the stumpage price of the tree, of the lumber on the stump, is a very insignificant factor in fixing the value of the lumber itself. It is only a very small part of it. For example, in the case of lumber where the stumpage is worth \$4 the lumber may be worth \$30 or \$40. The stumpage value is only one-tenth of the value of the finished product.

Mr. SCOTT. That depends altogether, does it not, on the conditions under which the timber is cut?

Mr. PRICE. It does; but in no case that I know of does the cost of the stumpage represent a considerable part of the value of the finished product. It does not influence it to a material extent. It is the cost of manufacture and transportation to market. I have a couple of diagrams here which might interest you. This shows the rise in lumber values for four important commercial trees in the last ten years from 1894. For instance, white pine has gone up from \$47 a thousand in 1894 to \$91 a thousand at present—nearly doubled. Cypress has gone from \$31 to \$42. That is just an indication of how prices are going up.

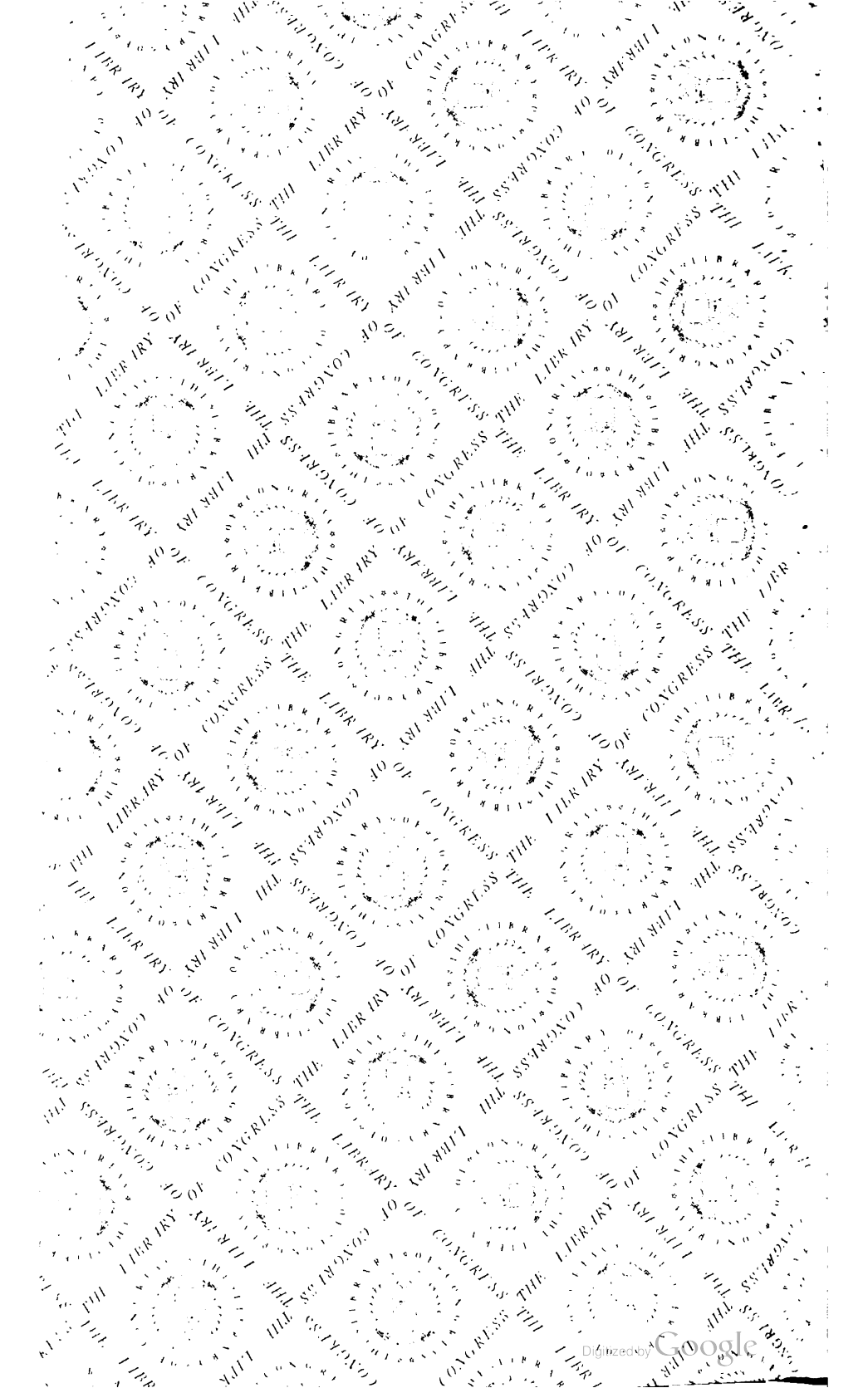
(The committee thereupon adjourned.)

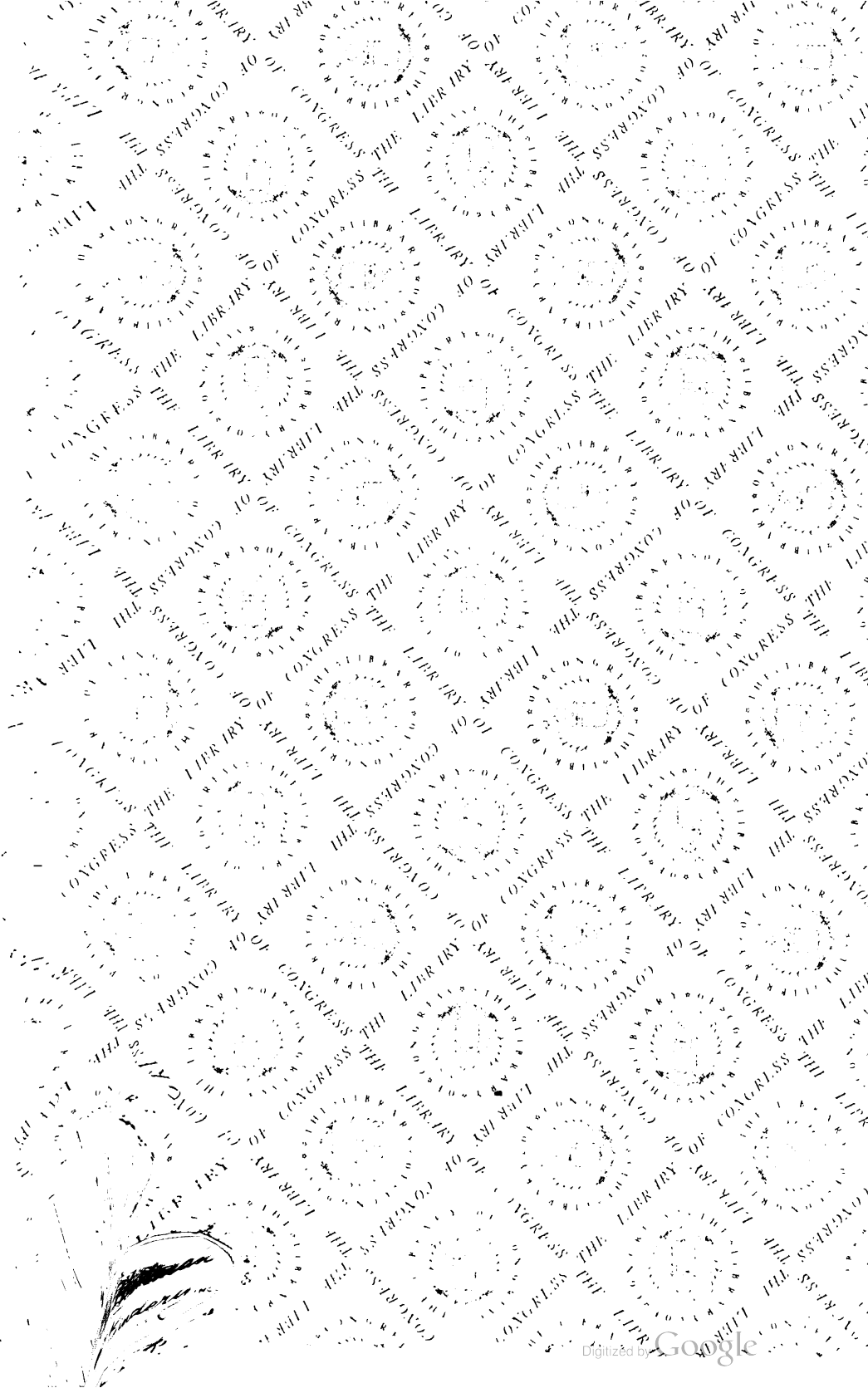
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